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DEPARTMENT OF THE AIR FORCE  
FISCAL YEAR (FY) 2010 BUDGET ESTIMATES  
RESEARCH, DEVELOPMENT, TEST AND EVALUATION (RDT&E)  
DESCRIPTIVE SUMMARIES, VOLUME III  
BUDGET ACTIVITY 7

MAY 2009



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**Fiscal Year 2010 Program And Budget Estimates  
RDT&E Descriptive Summaries, Volume III  
Scientific and Technology Budget Activity 7  
May 2009**

**INTRODUCTION AND EXPLANATION OF CONTENTS**

1. (U) GENERAL

- A. This document has been prepared to provide information on the United States Air Force (USAF) Research, Development, Test and Evaluation (RDT&E) program elements and projects in the FY 2010 President's Budget.
- 1) All exhibits in this document have been assembled in accordance with DoD 7000.14R, Financial Management Regulation, Volume 2B, Chapter 5, Section 050402. Exception:
    - a) Exhibit R-1, RDT&E Program, which was distributed under a separate cover due to classification.
  - 2) Other comments on exhibit contents in this document:
    - a) Exhibits R-2/2a and R-3 provide narrative information for all RDT&E program elements and projects within the USAF FY 2010 RDT&E program with the exception of classified program elements. The formats and contents of this document are in accordance with the guidelines and requirements of the Congressional committees insofar as possible.
    - b) The "Other Program Funding Summary" portion of the R-2 includes, in addition to RDT&E funds, Procurement funds and quantities, Military Construction appropriation funds on specific development programs, Operations and Maintenance appropriation funds where they are essential to the development effort described, and where appropriate, Department of Energy (DOE) costs.
    - c) "Facilities Exhibits", Military Construction Project Data, (DD 1391), for improvements to and construction of government-owned facilities funded in RD&E are included in this submission.

2. (U) CLASSIFICATION

- A. All exhibits contained in Volumes I, II, and III are unclassified. Classified exhibits are not included in the submission due to the level of security classification and necessity of special security clearances.

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<b>Program Element</b>	<b>Remarks</b>
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JOINT STARS	0207581F	Vol 3	367
Joint Strike Fighter EMD	0604800F	Vol 2	525
JOINT SURVEILLANCE SYSTEM	0102325F	Vol 3	73
JSpOC Mission System	0305614F	Vol 3	773
KC-10S	0401219F	Vol 3	917
KC-135 Replacement Tanker	0401221F	Vol 3	925
KC-135s	0401218F	Vol 3	905
KC-X, Next Generation Aerial Refueling Aircraft	0605221F	Vol 2	559
Large Aircraft InfraRed Counter Measures (LAIRCM)	0401134F	Vol 3	895
Life Support Systems	0604706F	Vol 2	491
Link 16 Support and Sustainment	0207434F	Vol 2	591
Logistics Information Technology (LOGIT)	0708610F	Vol 3	979
Major T&E Investment	0604759F	Vol 2	683
Manned Destructive Suppression	0207136F	Vol 3	141
Manned Reconnaissance System	0305207F	Vol 3	711
Manufacturing Technologies	0603680F	Vol 1	636
Materials	0602102F	Vol 1	87
MAUI SPACE SURVEILLANCE SYSTEM	0603444F	Vol 1	581



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PROGRAM ELEMENT TITLE	PE	VOL	PAGE
Medical Development	0602015F	Vol 1	81
MILSATCOM Terminals	0303601F	Vol 3	527
Minimum Essential Emergency Communications Network (MEECN)	0303131F	Vol 3	455
Mission Planning Systems	0208006F	Vol 3	413
MQ-9 Development and Fielding	0205219F	Vol 3	101
Multi-Platform Electronics	0207040F	Vol 3	109
NASS, IO TECH INTEGRATION & TOOL DEV	0307141F	Vol 3	831
National Polar-Orbiting Op Env Satellite	0305178F	Vol 2	261
National Security Space Office	0305924F	Vol 3	815
NATO Cooperative R&D	0603790F	Vol 2	85
NAVSTAR Global Positioning System User Equipment Space	0305164F	Vol 3	631
NAVSTAR GPS (Space)	0305165F	Vol 3	639
NCCMC - TW/AA System	0305906F	Vol 3	799
Network Centric Collaborative Targeting	0305221F	Vol 3	753
Next Generation Long Range Strike (NGLRS)	0604015F	Vol 2	165
Nuclear Weapons Support	0604222F	Vol 2	281
NUDET Detection System (Space)	0305913F	Vol 3	807
OPERATIONAL SUPPORT AIRLIFT	0401314F	Vol 3	933
Operationally Responsive Space	0604857F	Vol 2	235
OTHER FLIGHT TRAINING	0804743F	Vol 3	999
OTHER PERSONNEL ACTIVITIES	0808716F	Vol 3	1017
Pararescue (Guardian Angel Weapon System)	0207227F	Vol 3	175
PERSONNEL ADMINISTRATION	0901220F	Vol 3	1043
Personnel Recovery Systems	0604261F	Vol 2	335

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PROGRAM ELEMENT TITLE	PE	VOL	PAGE
Physical Security Equipment	0603287F	Vol 2	21
Physical Security Equipment	0604287F	Vol 2	379
Polar MILSATCOM (Space)	0603432F	Vol 2	53
Pollution Prevention	0603859F	Vol 2	151
Precision Attack Systems	0207249F	Vol 3	189
PREDATOR DEVELOPMENT/FIELDING	0305219F	Vol 3	733
RAND Project Air Force	0605101F	Vol 2	693
RDT&E For Aging Aircraft	0605011F	Vol 2	551
REGION/ SECTOR OPERATIONS CONTROL CENTER	0102326F	Vol 3	79
Requirements Analysis and Maturation	0604337F	Vol 2	191
Rocket Systems Launch Program (RSLP)	0605860F	Vol 2	713
Satellite Control Network	0305110F	Vol 3	583
Security And Investigative Activities	0305128F	Vol 3	617
Seek Eagle	0207590F	Vol 3	375
SERVICE-WIDE SUPPORT	0901212F	Vol 3	1029
Shared Early Warning System	0308699F	Vol 3	839
Single Integrated Air Picture (SIAP)	0207451F	Vol 2	619
SLC3S-A (Senior Leader C3S)	0401845F	Vol 2	667
Small Diameter Bomb	0604329F	Vol 2	385
Space & Missile Test & Evaluation Center	0305173F	Vol 3	645
Space Based Infrared Systems (SBIRS) High EMD	0604441F	Vol 2	447
Space Control Technology	0603438F	Vol 2	59
Space Situation Awareness Operations	0305940F	Vol 3	821
Space Situation Awareness Systems	0604425F	Vol 2	411

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PROGRAM ELEMENT TITLE	PE	VOL	PAGE
Space Technology	0602601F	Vol 1	287
Space Test Program	0605864F	Vol 2	717
SPACE WARFARE CENTER	0305174F	Vol 3	653
Spacelift Range System	0305182F	Vol 3	659
SPECIAL TACTICS/COMBAT CONTROL	0408011F	Vol 3	951
Specialized Undergraduate Pilot Training	0604233F	Vol 2	309
STRAT AEROSPACE INTEL SYS ACTIVITIES	0102823F	Vol 3	87
STRAT WAR PLANNING SYS - USSTRATCOM	0101313F	Vol 3	55
Submunitions	0604604F	Vol 2	475
Support Systems Development	0708611F	Vol 3	987
Sustainment Science and Technology (S&T)	0603199F	Vol 1	429
TAC AIRBORNE CONTROL SYSTEM	0207418F	Vol 3	289
Tactical AIM Missiles	0207161F	Vol 3	155
TACTICAL DATA NETWORKS ENTERPRISE	0604281F	Vol 2	365
Technology Transition Program.	0604858F	Vol 2	253
Test and Evaluation Support	0605807F	Vol 2	707
Theater Battle Management (TBM) C4I	0207438F	Vol 3	317
Third Generation Infrared Surveillance (3GIRS)	0604443F	Vol 2	453
Threat Simulator Development	0604256F	Vol 2	675
TRAINING DEVELOPMENTS	0804772F	Vol 3	1011
Transformational SATCOM (TSAT)	0603845F	Vol 2	103
University Research Initiatives	0601103F	Vol 1	65
USAF Modeling and Simulation	0207601F	Vol 3	383
Warfighter Rapid Acquisition Program	0203761F	Vol 3	93

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PROGRAM ELEMENT TITLE	PE	VOL	PAGE
Wargaming and Simulation Centers	0207605F	Vol 3	401
WEATHER SERVICE	0305111F	Vol 3	591
Wideband MILSATCOM (Space)	0603854F	Vol 2	139
WWMCCS/GLOBAL COMMAND & CONTROL SYSTEM	0303150F	Vol 3	511

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 Summary  
 (Dollars in Thousands)

05 MAY 2009

Summary Recap of Budget Activities -----	FY 2008 -----	FY 2009 -----	FY 2010 -----
Basic Research	403,995	464,290	466,111
Applied Research	1,148,114	1,213,683	1,094,651
Advanced Technology Development	666,736	722,524	618,030
Advanced Component Development & Prototypes	2,620,511	2,530,283	1,795,884
System Development & Demonstration	4,138,350	4,159,289	4,219,726
RDT&E Management Support	1,485,564	1,127,767	1,046,524
Operational Systems Development	15,883,545	16,834,385	18,751,901
Total Research, Development, Test & Eval, AF	26,346,815	27,052,221	27,992,827
 Summary Recap of FYDP Programs -----			
Strategic Forces	110,411	85,539	735,769
General Purpose Forces	2,376,981	2,352,545	2,331,745
Intelligence and Communications	2,225,360	2,492,422	3,262,011
Mobility Forces	763,908	668,563	628,244
Research and Development	9,774,486	9,483,102	8,714,607
Central Supply and Maintenance	216,874	258,385	273,226
Training Medical and Other	6,039	4,318	7,360
Administration and Associated Activities	76,787	52,173	81,033
Support of Other Nations	3,903	3,899	3,748
Classified Programs	10,792,066	11,651,275	11,955,084
Total Research, Development, Test & Eval, AF	26,346,815	27,052,221	27,992,827

Exhibit R-1: Total (Direct and Supplementals), as of May 5, 2009 at 12:28:14

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APPROPRIATION: 3600F Research, Development, Test &amp; Eval, AF

Date: 05 MAY 2009

Line No	Program Element Number	Item	Act	FY 2008	FY 2009	FY 2010	S E C
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1	0601102F	Defense Research Sciences	01	275,207	313,845	321,028	U
2	0601103F	University Research Initiatives	01	116,567	137,056	132,249	U
3	0601108F	High Energy Laser Research Initiatives	01	12,221	13,389	12,834	U
	Basic Research			403,995	464,290	466,111	
6	0602015F	Medical Development	02	1,490	4,887		U
7	0602102F	Materials	02	175,040	188,152	127,957	U
8	0602201F	Aerospace Vehicle Technologies	02	135,401	123,036	127,129	U
9	0602202F	Human Effectiveness Applied Research	02	90,603	93,222	85,122	U
10	0602203F	Aerospace Propulsion	02	217,266	252,024	196,529	U
11	0602204F	Aerospace Sensors	02	118,740	128,447	121,768	U
12	0602601F	Space Technology	02	124,910	138,980	104,148	U
13	0602602F	Conventional Munitions	02	61,469	57,407	58,289	U
14	0602605F	Directed Energy Technology	02	55,062	62,701	105,677	U
15	0602702F	Command Control and Communications	02	119,545	115,559		U
16	0602788F	Dominant Information Sciences and Methods	02			115,278	U
17	0602890F	High Energy Laser Research	02	48,588	49,268	52,754	U
	Applied Research			1,148,114	1,213,683	1,094,651	
18	0603112F	Advanced Materials for Weapon Systems	03	61,166	62,676	37,901	U
19	0603199F	Sustainment Science and Technology (S&T)	03			2,955	U

Exhibit R-1: Total (Direct and Supplementals), as of May 5, 2009 at 12:28:14

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APPROPRIATION: 3600F Research, Development, Test &amp; Eval, AF

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Line No	Program Element Number	Item	Act	FY 2008	FY 2009	FY 2010	S E C
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20	0603203F	Advanced Aerospace Sensors	03	60,877	65,115	51,482	U
21	0603211F	Aerospace Technology Dev/Demo	03	70,352	45,990	76,844	U
22	0603216F	Aerospace Propulsion and Power Technology	03	139,591	180,554	175,676	U
23	0603231F	Crew Systems and Personnel Protection Technology	03	36,084	36,411		U
24	0603270F	Electronic Combat Technology	03	26,947	30,241	31,021	U
25	0603401F	Advanced Spacecraft Technology	03	97,639	97,469	83,909	U
26	0603444F	Maui Space Surveillance System (MSSS)	03	41,357	36,339	5,813	U
27	0603456F	Human Effectiveness Advanced Technology Development	03			24,565	U
28	0603601F	Conventional Weapons Technology	03	18,698	17,166	14,356	U
29	0603605F	Advanced Weapons Technology	03	78,556	56,283	30,056	U
30	0603680F	Manufacturing Technology Program	03		56,376	39,913	U
31	0603788F	Battlespace Knowledge Development and Demonstration	03			39,708	U
32	0603789F	C3I Advanced Development	03	31,781	33,902		U
33	0603924F	High Energy Laser Advanced Technology Program	03	3,688	4,002	3,831	U
		Advanced Technology Development		666,736	722,524	618,030	
34	0603260F	Intelligence Advanced Development	04	5,892	6,570	5,009	U
35	0603287F	Physical Security Equipment	04	2,767	1,672	3,623	U
36	0603421F	NAVSTAR Global Positioning System III	04	446,197			U

Exhibit R-1: Total (Direct and Supplementals), as of May 5, 2009 at 12:28:14

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37	0603423F	Global Positioning System III - Operational Control Segment	04		306,502		U
38	0603430F	Advanced EHF MILSATCOM (SPACE)	04	612,318	386,425	464,335	U
39	0603432F	Polar MILSATCOM (SPACE)	04	171,775	236,965	253,150	U
40	0603438F	Space Control Technology	04	61,659	86,110	97,701	U
41	0603742F	Combat Identification Technology	04	25,170	29,300	27,252	U
42	0603790F	NATO Research and Development	04	4,173	4,322	4,351	U
43	0603791F	International Space Cooperative R&D	04	593	620	632	U
44	0603845F	Transformational SATCOM (TSAT)	04	776,505	761,285		U
45	0603850F	Integrated Broadcast Service	04	20,873	21,020	20,739	U
46	0603851F	Intercontinental Ballistic Missile	04	26,069	70,237	66,079	U
47	0603854F	Wideband Global SATCOM RDT&E (Space)	04	20,992	52,080	70,956	U
48	0603859F	Pollution Prevention	04	10,660	11,645	2,896	U
49	0603860F	Joint Precision Approach and Landing Systems	04	6,216	7,358	23,174	U
50	0604015F	Next Generation Bomber	04	7,000			U
51	0604283F	Battle Mgmt Com & Ctrl Sensor Development	04			22,612	U
52	0604327F	Hard and Deeply Buried Target Defeat System (HDBTDS) Program	04			20,891	U
53	0604330F	Joint Dual Role Air Dominance Missile	04			6,882	U
54	0604337F	Requirements Analysis and Maturation	04			35,533	U

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55	0604635F	Ground Attack Weapons Fuze Development	04			18,778	U
56	0604796F	Alternative Fuels	04		54,217	89,020	U
57	0604830F	Automated Air-to-Air Refueling	04		9,862	43,158	U
58	0604856F	Common Aero Vehicle (CAV)	04	3,695			U
59	0604857F	Operationally Responsive Space	04	86,985	196,561	112,861	U
60	0604858F	Tech Transition Program	04			9,611	U
61	0305178F	National Polar-Orbiting Operational Environmental Satellite System (NPOESS)	04	330,972	287,532	396,641	U
		Advanced Component Development & Prototypes		2,620,511	2,530,283	1,795,884	
62	0603840F	Global Broadcast Service (GBS)	05	21,373	18,709	31,124	U
63	0604222F	Nuclear Weapons Support	05	19,739	20,111	37,860	U
64	0604226F	B-1B	05	180,434	142,643		U
65	0604233F	Specialized Undergraduate Flight Training	05	14,033	13,426	6,227	U
66	0604240F	B-2 Advanced Technology Bomber	05	277,880	364,076		U
67	0604261F	Personnel Recovery Systems	05	60,344			U
68	0604270F	Electronic Warfare Development	05	76,169	56,342	97,275	U
69	0604281F	Tactical Data Networks Enterprise	05			88,444	U
70	0604287F	Physical Security Equipment	05	33	52	50	U
71	0604329F	Small Diameter Bomb (SDB)	05	147,586	126,324	153,815	U
72	0604421F	Counterspace Systems	05	59,379	76,147	64,248	U
73	0604425F	Space Situation Awareness Systems	05	206,362	209,266	308,134	U

Exhibit R-1: Total (Direct and Supplementals), as of May 5, 2009 at 12:28:14

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74	0604429F	Airborne Electronic Attack	05	23,170	43,123	11,107	U
75	0604441F	Space Based Infrared System (SBIRS) High EMD	05	583,305	542,411	512,642	U
76	0604443F	Third Generation Infrared Surveillance (3GIRS)	05	75,410	953	143,169	U
77	0604602F	Armament/Ordnance Development	05	7,558	2,089	18,671	U
78	0604604F	Submunitions	05	1,970	1,725	1,784	U
79	0604617F	Agile Combat Support	05	11,856	5,775	11,261	U
80	0604706F	Life Support Systems	05	13,247	16,553	10,711	U
81	0604735F	Combat Training Ranges	05	15,541	27,971	29,718	U
82	0604740F	Integrated Command & Control Applications (IC2A)	05	27,804	9,704	10	U
83	0604750F	Intelligence Equipment	05	5,037	2,282	1,495	U
84	0604800F	Joint Strike Fighter (JSF)	05	1,939,107	1,734,299	1,858,055	U
85	0604851F	Intercontinental Ballistic Missile	05			60,010	U
86	0604853F	Evolved Expendable Launch Vehicle Program (SPACE)	05	6,500	33,628	26,545	U
87	0605011F	RDT&E for Aging Aircraft	05	26,973	13,791		U
88	0605221F	Next Generation Aerial Refueling Aircraft	05		22,938	439,615	U
89	0605277F	CSAR-X RDT&E	05		232,232	89,975	U
90	0605278F	HC/MC-130 Recap RDT&E	05		11,660	20,582	U
91	0605452F	Joint SIAP Executive Program Office	05			34,877	U
92	0207434F	Link-16 Support and Sustainment	05	186,371	192,460		U

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93	0207450F	E-10 Squadrons	05	37,675			U
94	0207451F	Single Integrated Air Picture (SIAP)	05	4,723	66,663	13,466	U
95	0207701F	Full Combat Mission Training	05	60,171	134,786	99,807	U
96	0305176F	Combat Survivor Evader Locator	05	4,900			U
97	0401138F	Joint Cargo Aircraft (JCA)	05	20,283	16,732	9,353	U
98	0401318F	CV-22	05	23,417	18,512	19,640	U
99	0401845F	Airborne Senior Leader C3 (SLC3S)	05		1,906	20,056	U
	System Development & Demonstration			4,138,350	4,159,289	4,219,726	
100	0604256F	Threat Simulator Development	06	35,903	34,474	27,789	U
101	0604759F	Major T&E Investment	06	62,635	69,221	60,824	U
102	0605101F	RAND Project Air Force	06	40,469	29,891	27,501	U
103	0605502F	Small Business Innovation Research	06	361,808			U
104	0605712F	Initial Operational Test & Evaluation	06	29,952	29,457	25,833	U
105	0605807F	Test and Evaluation Support	06	753,220	785,576	736,488	U
106	0605860F	Rocket Systems Launch Program (SPACE)	06	23,804	14,855	14,637	U
107	0605864F	Space Test Program (STP)	06	50,019	47,654	47,215	U
108	0605976F	Facilities Restoration and Modernization - Test and Evaluation Support	06	61,234	46,108	52,409	U
109	0605978F	Facilities Sustainment - Test and Evaluation Support	06	33,849	29,618	29,683	U
110	0702806F	Acquisition and Management Support	06	25,630	37,014	18,947	U

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111	0804731F	General Skill Training	06	2,904		1,450	U
112	0909999F	Financing for Cancelled Account Adjustments	06	234			U
113	1001004F	International Activities	06	3,903	3,899	3,748	U
	RDT&E Management Support			1,485,564	1,127,767	1,046,524	
114	0604263F	Common Vertical Lift Support Platform	07		3,858	9,513	U
115	0605024F	Anti-Tamper Technology Executive Agency	07	12,399	20,912	47,276	U
117	0101113F	B-52 Squadrons	07	51,336	38,546	93,930	U
118	0101122F	Air-Launched Cruise Missile (ALCM)	07	4,514	395	3,652	U
119	0101126F	B-1B Squadrons	07			148,025	U
120	0101127F	B-2 Squadrons	07			415,414	U
121	0101313F	Strat War Planning System - USSTRATCOM	07	25,159	17,505	33,836	U
122	0101314F	Night Fist - USSTRATCOM	07	6,774	5,285	5,328	U
124	0102325F	Atmospheric Early Warning System	07			9,832	U
125	0102326F	Region/Sector Operation Control Center Modernization Program	07	22,628	23,793	25,734	U
126	0102823F	Strategic Aerospace Intelligence System Activities	07		15	18	U
127	0203761F	Warfighter Rapid Acquisition Process (WRAP) Rapid Transition Fund	07	21,757	20,751	11,996	U
128	0205219F	MQ-9 UAV	07	55,863	46,431	39,245	U

Exhibit R-1: Total (Direct and Supplementals), as of May 5, 2009 at 12:28:14

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129	0207040F	Multi-Platform Electronic Warfare Equipment	07			14,747	U
130	0207131F	A-10 Squadrons	07	6,498	3,989	9,697	U
131	0207133F	F-16 Squadrons	07	76,816	126,834	141,020	U
132	0207134F	F-15E Squadrons	07	114,865	198,872	311,167	U
133	0207136F	Manned Destructive Suppression	07	500	5,570	10,748	U
134	0207138F	F-22A Squadrons	07	607,785	605,659	569,345	U
135	0207161F	Tactical AIM Missiles	07	7,692	5,732	5,915	U
136	0207163F	Advanced Medium Range Air-to-Air Missile (AMRAAM)	07	36,414	54,092	49,971	U
137	0207170F	Joint Helmet Mounted Cueing System (JHMCS)	07	4,244	3,183	2,529	U
138	0207227F	Combat Rescue - Pararescue	07			2,950	U
139	0207247F	AF TENCAP	07	11,452	11,547	11,643	U
140	0207249F	Precision Attack Systems Procurement	07			2,950	U
141	0207253F	Compass Call	07	13,470	4,657	13,019	U
142	0207268F	Aircraft Engine Component Improvement Program	07	158,560	150,547	166,563	U
143	0207277F	CSAF Innovation Program	07			4,621	U
144	0207325F	Joint Air-to-Surface Standoff Missile (JASSM)	07	11,775	32,946	29,494	U
145	0207410F	Air & Space Operations Center (AOC)	07	96,593	98,566	99,405	U
146	0207412F	Control and Reporting Center (CRC)	07	24,108	58,894	52,508	U

Exhibit R-1: Total (Direct and Supplementals), as of May 5, 2009 at 12:28:14

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Line No	Program Element Number	Item	Act	FY 2008	FY 2009	FY 2010	S E C
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147	0207417F	Airborne Warning and Control System (AWACS)	07	146,341	125,710	176,040	U
148	0207418F	Tactical Airborne Control Systems	07	3,366	1,526		U
149	0207423F	Advanced Communications Systems	07	30,226	29,587	63,782	U
151	0207431F	Combat Air Intelligence System Activities	07			1,475	U
152	0207438F	Theater Battle Management (TBM) C4I	07	12,079	19,384	19,067	U
153	0207445F	Fighter Tactical Data Link	07	57,424	57,264	72,106	U
154	0207446F	Bomber Tactical Data Link	07	38,280	11,603		U
155	0207448F	C2ISR Tactical Data Link	07	1,745	1,719	1,667	U
156	0207449F	Command and Control (C2) Constellation	07	42,969	31,705	26,792	U
157	0207581F	Joint Surveillance/Target Attack Radar System (JSTARS)	07	337,563	81,025	140,670	U
158	0207590F	Seek Eagle	07	22,663	21,586	22,071	U
159	0207601F	USAF Modeling and Simulation	07	20,739	28,866	27,245	U
160	0207605F	Wargaming and Simulation Centers	07	6,186	3,860	7,018	U
161	0207697F	Distributed Training and Exercises	07	6,770	7,118	6,740	U
162	0208006F	Mission Planning Systems	07	101,666	97,296	91,995	U
163	0208021F	Information Warfare Support	07	11,632	12,117	12,271	U
170	0302015F	E-4B National Airborne Operations Center (NAOC)	07	18,576	4,058	26,107	U
171	0303112F	Air Force Communications (AIRCOM)	07	2,009			U

Exhibit R-1: Total (Direct and Supplementals), as of May 5, 2009 at 12:28:14

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## UNCLASSIFIED

Department of the Air Force  
 FY 2010/2011 President's Budget  
 Exhibit R-1  
 (Dollars in Thousands)

APPROPRIATION: 3600F Research, Development, Test &amp; Eval, AF

Date: 05 MAY 2009

Line No	Program Element Number	Item	Act	FY 2008	FY 2009	FY 2010	S E C
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172	0303131F	Minimum Essential Emergency Communications Network (MEECN)	07	85,458	70,562	72,694	U
173	0303140F	Information Systems Security Program	07	178,671	189,956	196,621	U
174	0303141F	Global Combat Support System	07	14,665	5,744	3,375	U
175	0303150F	Global Command and Control System	07	3,174	3,209	3,149	U
176	0303158F	Joint Command and Control Program (JC2)	07	5,585	3,225	3,087	U
177	0303601F	MILSATCOM Terminals	07	362,676	334,182	257,693	U
179	0304260F	Airborne SIGINT Enterprise	07	138,346	173,160	176,989	U
182	0305099F	Global Air Traffic Management (GATM)	07	7,203	6,258	6,028	U
183	0305103F	Cyber Security Initiative	07		2,078	2,065	U
184	0305110F	Satellite Control Network (SPACE)	07	23,530	16,547	20,991	U
185	0305111F	Weather Service	07	39,830	47,219	33,531	U
186	0305114F	Air Traffic Control, Approach, and Landing System (ATCAL)	07	6,395	10,796	9,006	U
187	0305116F	Aerial Targets	07	5,683	34,683	54,807	U
190	0305128F	Security and Investigative Activities	07	1,922	784	742	U
192	0305146F	Defense Joint Counterintelligence Activities	07		39	39	U
194	0305164F	NAVSTAR Global Positioning System (User Equipment) (SPACE)	07	150,979	126,712	137,692	U
195	0305165F	NAVSTAR Global Positioning System (Space and Control Segments)	07	110,224	90,711	52,039	U

Exhibit R-1: Total (Direct and Supplementals), as of May 5, 2009 at 12:28:14

## UNCLASSIFIED

Department of the Air Force  
 FY 2010/2011 President's Budget  
 Exhibit R-1  
 (Dollars in Thousands)

APPROPRIATION: 3600F Research, Development, Test &amp; Eval, AF

Date: 05 MAY 2009

Line No	Program Element Number	Item	Act	FY 2008	FY 2009	FY 2010	S E C
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197	0305173F	Space and Missile Test and Evaluation Center	07	4,986	1,967	3,599	U
198	0305174F	Space Warfare Center	07	1,622	2,974	3,009	U
199	0305182F	Spacelift Range System (SPACE)	07	25,089	12,322	9,957	U
200	0305193F	Intelligence Support to Information Operations (IO)	07	8,312	3,627	1,240	U
201	0305202F	Dragon U-2	07	608			U
202	0305205F	Endurance Unmanned Aerial Vehicles	07			73,736	U
203	0305206F	Airborne Reconnaissance Systems	07	111,842	103,870	143,892	U
204	0305207F	Manned Reconnaissance Systems	07	24,333	17,811	12,846	U
205	0305208F	Distributed Common Ground/Surface Systems	07	100,330	105,272	82,765	U
206	0305219F	MQ-1 Predator A UAV	07	37,642	36,906	18,101	U
207	0305220F	RQ-4 UAV	07	274,729	310,664	317,316	U
208	0305221F	Network-Centric Collaborative Targeting	07	12,035	8,783	8,160	U
209	0305265F	GPS III Space Segment	07		392,276	815,095	U
210	0305614F	JSpOC Mission System	07			131,271	U
211	0305887F	Intelligence Support to Information Warfare	07	5,163	5,401	5,267	U
212	0305906F	NCCM - TW/AA System	07	11,417			U
213	0305913F	NUDET Detection System (SPACE)	07	38,279	41,102	84,021	U
214	0305924F	National Security Space Office	07	15,104	7,587	10,634	U
215	0305940F	Space Situation Awareness Operations	07	38,679	15,579	54,648	U

Exhibit R-1: Total (Direct and Supplementals), as of May 5, 2009 at 12:28:14

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## UNCLASSIFIED

Department of the Air Force  
 FY 2010/2011 President's Budget  
 Exhibit R-1  
 (Dollars in Thousands)

APPROPRIATION: 3600F Research, Development, Test &amp; Eval, AF

Date: 05 MAY 2009

Line No	Program Element Number	Item	Act	FY 2008	FY 2009	FY 2010	S E C
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216	0307141F	Information Operations Technology Integration & Tool Development	07	21,348	15,683	30,076	U
217	0308699F	Shared Early Warning (SEW)	07	3,044	3,143	3,082	U
218	0401115F	C-130 Airlift Squadron	07	233,309	179,272	201,250	U
219	0401119F	C-5 Airlift Squadrons (IF)	07	173,960	127,118	95,266	U
220	0401130F	C-17 Aircraft (IF)	07	166,217	235,407	161,855	U
221	0401132F	C-130J Program	07	62,106	27,280	30,019	U
222	0401134F	Large Aircraft IR Countermeasures (LAIRCM)	07	17,557	36,401	31,784	U
223	0401218F	KC-135s	07	7,825	10,305	10,297	U
224	0401219F	KC-10s	07	13,510		35,586	U
225	0401221F	KC-135 Tanker Replacement	07	29,686			U
226	0401314F	Operational Support Airlift	07	3,870		4,916	U
227	0401839F	Air Mobility Tactical Data Link	07	4,300	7,923		U
228	0408011F	Special Tactics / Combat Control	07	7,868	7,707	8,222	U
229	0702207F	Depot Maintenance (Non-IF)	07	1,459	1,527	1,508	U
230	0702976F	Facilities Restoration & Modernization - Logistics	07		44,778		U
231	0708011F	Industrial Preparedness	07	48,987			U
232	0708610F	Logistics Information Technology (LOGIT)	07	104,817	159,246	246,483	U
233	0708611F	Support Systems Development	07	35,981	15,820	6,288	U
234	0804743F	Other Flight Training	07			805	U
235	0804757F	Joint National Training Center	07	3,021	3,205	3,220	U

Exhibit R-1: Total (Direct and Supplementals), as of May 5, 2009 at 12:28:14

## UNCLASSIFIED

Department of the Air Force  
 FY 2010/2011 President's Budget  
 Exhibit R-1  
 (Dollars in Thousands)

APPROPRIATION: 3600F Research, Development, Test &amp; Eval, AF

Date: 05 MAY 2009

Line No	Program Element Number	Item	Act	FY 2008	FY 2009	FY 2010	S E C
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236	0804772F	Training Developments	07			1,769	U
237	0808716F	Other Personnel Activities	07	114	1,113	116	U
238	0901202F	Joint Personnel Recovery Agency	07	5,192	5,752	6,376	U
239	0901212F	Service-Wide Support (Not Otherwise Accounted For)	07	6,454	3,008		U
240	0901218F	Civilian Compensation Program	07	13,328	8,101	8,174	U
241	0901220F	Personnel Administration	07	22,944	18,575	10,492	U
242	0901538F	Financial Management Information Systems Development	07	28,635	16,737	55,991	U
9999	9999999999	Classified Programs		10,792,066	11,651,275	11,955,084	U
		Operational Systems Development		15,883,545	16,834,385	18,751,901	
		Total Research, Development, Test & Eval, AF		26,346,815	27,052,221	27,992,827	

Exhibit R-1: Total (Direct and Supplementals), as of May 5, 2009 at 12:28:14

**PROGRAM ELEMENT COMPARISON SUMMARY**

**PROGRAM ELEMENT (By BUDGET ACTIVITY)**

**BUDGET ACTIVITY #1: BASIC RESEARCH (Volume 1)**

**REMARKS**

0601102F Defense Research Sciences

In FY 2010, efforts will move from this Project to Projects 2307 and 2311 within this PE to more accurately align basic research efforts in the Fluid Dynamics and Information Science disciplines, respectively. Note: In FY 2010, efforts were moved from this Project to Projects 2306 and 2308 within this PE to more accurately align basic research efforts in the Materials and Propulsion disciplines, respectively. In FY 2010, efforts in building and testing mathematical descriptions of cognitive decision-making moved from Project 2313 in this PE to this Project to more accurately align basic research efforts in Information Services. In FY 2010, Bioenergy and Catalysis efforts from Project 2312 in this PE moved to this Project to more accurately align basic research efforts in Propulsion. In FY 2010, Natural Flight Control and Navigation efforts from Project 2313 in this PE moved to this Project to more accurately align basic research efforts in Fluid Mechanics.

**BUDGET ACTIVITY #2: APPLIED RESEARCH (Volume 1)**

**0602102F**

Materials

In FY 2010 and out, funds from Project 01SP have been moved to Project 4347, Project 4348, and Project 4349 within this Program Element to more accurately align efforts.

**0602202F**

Human Effectiveness Applied Research

In FY 2010, Human Dynamics Evaluation efforts will move from Project 7184 to Project 5328, Sensory Evaluation and Decision Science efforts will move from Project 7184 to Project 5329, and Performance Evaluation in Extreme Environments efforts within Project 7757 will move to Project 7184 to better align efforts.

**0602203F**

Aerospace Propulsion

In FY 2010. The fuels portion of this Project will be moved to Project 5330 within this Program Element to more accurately align efforts with organizational structure. In FY10, work was moved to PE 0602203F Project 4847 to more accurately align efforts. In FY2010 The funding in this project will be transferred in from 62203F Project 3048 to more accurately align efforts with organizational structure. In FY 2010, funds from Project 44SP are being moved to Projects 2002, 2003, and 7622 to better align efforts.

**0602204F**

Aerospace Sensors

In FY 2010, the efforts that had been in Project 55SP, Laser and Imaging Space Technology have been moved to this project to allow better integration of directed energy efforts. Also in FY 2010 several electric laser, relay mirror, and space situational awareness efforts in PE 0603605F, Advanced Weapons Technology, have been moved into this project to better reflect the actual technology readiness level of the efforts. In FY 2010, the efforts in this project are being moved to Project 4866, Lasers & Imaging Technology to better align efforts.

0602605F

Directed Energy Technology

In FY 2010, efforts in this PE move to PE 0602788F, Dominant Information Technology. In FY 2010, this effort moves to PE 0602788F, Project 5316, Info Mgmt and Computational Tech. In FY 2010, these efforts move to PE 0602788, Project 5318, Operational Awareness Tech, and Project 5317, Information Decision Making Tech. In FY 2010, this effort moves to PE 0602788F, Project 5315, Connectivity and Protection Tech.

0602702F

Command Control and Communications

**BUDGET ACTIVITY #3: ADVANCED TECHNOLOGY DEVELOPMENT (Volume 1)**

0603203F

Advanced Aerospace Sensors

In FY 2010, funds from Project 88SP are being moved to Projects 665A and 69DF to better align efforts.

0603216F

Aerospace Propulsion and Power Technology

In FY10, The funding has been increased due to emphasis on component development in support of adaptive cycle demonstrations, highly efficient embedded turbine engines, and small heavy fueled engines. In FY10, this work was moved from Project 10SP within this Program Element to better align efforts. In FY10 and beyond, this work was moved to Project 4922 within this Program Element to better align efforts.

0603231F	Crew Systems and Personnel Protection Technology	In FY 2010, Decision Effectiveness Technology efforts will move from PE 0603231F, Project 2830 to PE 0603456F, Project 5324, Project 5326, and Project 5327; Warfighter Readiness Technology efforts will move from PE 0603231F, Project 4924 to PE 0603456F, Project 5325; and Bioeffects & Protection Technology efforts will move from PE 0603231F, Project 5020 to PE 0603456F, Project 5323 and Project 5326 to better align efforts.
0603456F	Human Effectiveness Adv Tech Dev	In FY 2010, Directed Energy Bioeffects Parameters efforts will move from PE 0603231F, Project 5020 to PE 0603456F, Project 5323; Human Dynamics and Terrain Demonstration efforts will move from PE 0603231F, Project 2830 to PE 0603456F, Project 5324; Mission Effective Performance efforts will move from PE 0603231F, Project 4924 to PE 0603456F, Project 5325; Performance Enhancement Demonstration efforts will move from PE 0603231F, Project 2830 and Project 5020 to PE 0603456F, Project 5326; and Warfighter Interfaces efforts will move from PE 0603231F, Project 2830 to PE 0603456F, Project 5327 to better align efforts.
0603605F	Advanced Weapons Technology	In FY 2010, some of the efforts from Project 11SP, Advanced Optics and Laser Space Technology, are being moved to this Project to better align efforts. Also in FY 2010, some of the electric laser, relay mirror, and space situational awareness efforts in this project have been moved into PE 0602605F, Directed Energy Technology, to better reflect the technology readiness level of the efforts.
0603789F	C3I Advanced Development	In FY 2010 efforts moves to PE 0603788F, Project 5321, Global Battlespace Awareness, Project 5322, Knowledge Management and Computing, and Project 5319, Anticipatory Ops Intent and Response.

**BUDGET ACTIVITY #4: ADVANCED COMPONENT DEVELOPMENT AND PROTOTYPE (Volume 2)**

0603845F	Transformational SATCOM (TSAT)	In FY2010, Project #4944, Advanced Wideband System, was terminated.
0604283F	BMC2 Sensor Development	In FY 2010, Project 5363, MP-RTIP, efforts were transferred from PE 0207581F, PE Joint STARS, Project 0003, in order to continue risk reduction on a Wide Area Surveillance (WAS) radar and supporting Battle Management Command and Control (BMC2).
0604635F	Ground Attack Weapons Fuze Development	In FY 2010, Project 645312, Hard target Void Sensing Fuze is a new start effort.

**BUDGET ACTIVITY #5: SYSTEM DEVELOPMENT AND DEMONSTRATION (SDD) (Volume 2)**

0207434F	Link 16 Support and Sustainment	In FY2010, Project 655050 and 655262 moved from Program Element 0207434F Link 16 Support and Sustainment to Program Element 0604281F Tactical Data Networks Enterprise.
0207451F	Single Integrated Air Picture (SIAP)	In FY2010, efforts to develop and complete the Joint Track Manager were transferred to PE 0605452F, Joint SIAP Executive Program Office, Project 5370.
0604226F	B-1B	In FY2010, B-1B development efforts are transferring from PE 0604226F, Budget Program Activity Code (BPAC) 654596 to B-1B Squadrons, PE 0101126F, BPAC 675344. This transfers funds / efforts from Budget Activity (BA) 5 Demonstration / Validation to BA 7 Operations Systems Development.
0604240F	B-2 Advanced Technology Bomber	In FY 2010, Project Number 653843, B-2 Advanced Technology Bomber efforts are transferring from PE 0604240F, B-2 Advanced Technology Bomber, to PE 0101127F, B-2 Squadrons, transferring funds/efforts from MFP 6 to MFP 1.
0604270F	EW Development	In FY 2010, MALD-J is broken out in Project 655305, MALD-J.
0604281F	Tactical Data Networks Enterprise	In FY2010, Project 655050 and 655262 moved from Program Element 0207434F Link 16 Support and Sustainment to this Program Element.
0604421F	Counterspace Systems	In FY 2010, Program 65A024, RAIDRS Block 20 content and funding were transferred to PE 0305614F, Joint Space Operations Center (JSpOC) Mission Systems

0604425F	Space Situation Awareness Systems	In FY 2010, Space Situation Awareness Environmental Monitoring (SSAEM), 65A038, is a new project . Space Surveillance Telescope, 65A037, is a new project in FY10. Net-centric Sensors and Data Sources, 65A012, is a new project in FY10, with the exception of the ESSA ACTD transition effort which was included previously in the ISSA program and is now associated with the JSpOC Mission System in PE 35614F. Beginning in FY10 efforts formerly in the ISSA project have transferred to the JSpOC Mission System (JMS), PE 35164F, except for the ESSA ACTD, which is now executed in the Net-Centric Sensors and Data Sources project.
0604602F		In FY 2010, Project 5361, Stores-Aircraft Interface (new), efforts were transferred from PE 0605011F, RDT&E for Aging Aircraft, Project 654685, Universal Armament Interface (UAI), in order to properly fund the maturing technology.
0604617F	Agile Combat Support	In FY2010, Project 652895, Civil Engineering Readiness (CE), and Project 654910, Aeromedical Readiness, include New-Start efforts.
0604853F	Evolved Expendable Launch Vehicle - EMD	In FY2010, PE0604853F, Evolved Expendable Launch Vehicle (EELV) includes New Start efforts for Pre-Planned Product Improvements to sustain the EELV capability through 2030.
0605452F	Joint SIAP Program Executive Office	In FY2010, this is a new PE. Joint Program Executive Office (JPEO) Single Integrated Air Picture (SIAP) funding was transferred from Air Force Program Element 0207451F, Single Integrated Air Picture (SIAP), Joint SIAP Engineering and Development, to Air Force Program Element 0605452F, Joint Program Executive Office (JPEO) SIAP, in accordance with Department of Defense designation of the Air Force as the SIAP Acquisition Executive. As a result, funding was placed in the JPEO SIAP line for ongoing development of the Joint Track Manager (JTM) in FY10. The Quadrennial Defense Review (QDR) Analysis will assess the path forward by leveraging existing SIAP technologies and the Cooperative Engagement Capability (CEC) and Tactical Component Network (TCN) programs.

**BUDGET ACTIVITY #6: RDT&E MANAGEMENT SUPPORT (Volume 2)**

**BUDGET ACTIVITY #7: OPERATIONAL SYSTEM DEVELOPMENT (Volume 3)**

0305219F	Predator Development/Fielding	In FY 2010 funding totals do not include \$1.4M requested for Overseas Contingency Operations.
0401130F	C-17 Aircraft	In FY2010, 672569, C-17 Aircraft development includes new start efforts.
0708011F	Industrial Preparedness	In FY 2010, research efforts in Projects 2312 and 2313 moved to Projects 2306, 2307, 2308, and 2311 in this PE to more accurately align them to the Projects they support.
0207410F	Air and Space Operations Center -Weapon System (AOC-WS)	In FY2010, Project 674372, Space C2 Operations efforts transferred to PE 0305614F, JSpOC Mission Systems (JMS).
0207325F	Joint Air to Surface Standoff Missile (JASSM)	In FY10, Project 675242, Command and Control Air Replanning and Monitoring (C2ARM) efforts transferred to Project 675218, Applications Development, to better align C2 capability development projects and programs.
0207268F	Aircraft Engine Component Improvement Program (CIP)	In FY2010 this PE is broken out in 3 projects given above. Last year all RDT&E was funded in project 4515. This is a new project, starting in FY10.
0207134F	F-15E SQUADDRONS	In FY 2010, - Project 675365 is new in FY10 to provide enhanced funds tracking and accountability for the F135 engine (F-35). Previously, all Engine CIP work was accomplished entirely within Project 671012.
0305940F	Space Situation Awareness Operations	In FY2010, The GEODSS and Globus II service life extension programs are new starts in FY10.
0205219F	MQ-9 Development and Fielding	In FY 2010 funding totals do not include \$1.4M requested for Overseas Contingency Operations.

0305265F	GPS III Space Segment	In FY2010, funding from 2 OCX PEs (0603423F and 0603427F) consolidated into separate BPAC in this PE.
0207249F	Precision Attack Systems	In FY2010, Project 675347, Advanced Targeting Pod includes new start efforts.
0101126F	B-1B SQUADRONS	In FY2010, B-1B development efforts are transferring from PE 0604226F, Budget Program Activity Code (BPAC) 654596 to B-1B Squadrons, PE 0101126F, BPAC 675344. This transfers funds / efforts from Budget Activity (BA) 5 Demonstration / Validation to BA 7 Operations Systems Development.
0305205F	Endurance Unmanned Aerial Vehicles	In FY 2010, Project 5372, Integrated Sensor Is Structure, includes new start efforts.
0207412F	Control and Reporting Center (CRC)	IN FY2010, within PE 0207412F, partial funding was transferred from Project Number 485L, Project Title Control and Reporting Center (CRC), to Project Number 5294, Project Title Theater Air Control System Improvement - Radar (TACSI-R), to continue development of the AN/TPS-75 sensor replacement/upgrade, known as Three Dimensional Expeditionary Long Range Radar (3DELRR).
0303140F	Information System Security Program	In FY2010, Key Management Equipment Modernization (KMEM) concept refinement and development transfers to ISSP Project 675231, AF KMI, for integral KMI development. The KMEM project develops the KOV-21 follow-on crypto engine that will be utilized with the KMI next generation fill device" under development."
0304260F	Airborne SIGINT Enterprise (JMIP)	In FY2010, Funding decreased in FY10 to reflect the SIGINT Capabilities Working Group (SCWG) priorities and the accomplishment of other ASE initiatives.
0101313F	STRAT WAR PLANNING SYS- USSTRATCOM	In FY2010 Project 5368, Global Sensor Integrated Network (GSIN) transferred from PE 0105921F, Service Support to STRATCOM Space Activities, in order to better align effort and appropriation.
0305614F	JSpOC Mission System	In FY2010, JSpOC Mission System is a new program element. It consolidates on-going efforts from PE 64425F (Integrated Space Situational Awareness (ISSA), PE 64421F (RAIDRS Block 20), and PE 27410F (Space Command and Control) into a single program element as the programs were consolidated into a single program. This program will also develop improved, responsive, and accurate orbital collision predictions for commercial and international space systems.

**The following are Program Elements not providing RDT&E exhibits due to classification:**

<b><u>Program Element</u></b>	<b><u>Title</u></b>
0101314F	NIGHT FIST- USSTRATCOM
0101815F	Advanced Strategic Program
0207424F	Evaluation and Analysis Program
0208161F	Special Evaluation System
0301310F	National Air Intelligence Center
0301314F	COBRA BALL
0301315F	Missile and Space Technical Collection
0301324F	FOREST GREEN
0301386F	GDIP Collection Management
0301555F	Classified Programs
0301556F	Special Program
0304111F	Special Activities
0304311F	Selected Activities
0304348F	Advanced Geospatial Intelligence (AGI)
0305124F	Special Applications Program
0305142F	Applied Technology and Integration
0305159F	Defense Reconnaissance Support Activities
0305172F	Combined Advanced Applications
0605798F	Analysis Support Group
0305127F	Foreign Counterintelligence Activities

**In accordance with the President's Management Agenda, Budget and Performance Integration initiative, these programs have been assessed using the Program Assessment Rating Tool (PART). Remarks regarding program performance and plans for performance improvement can be located at the [Expectmore.gov](http://Expectmore.gov) website.**



**UNCLASSIFIED**

PE NUMBER: 0604263F  
 PE TITLE: CVLSP

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0604263F CVLSP</b>
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.000	3.858	9.513	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5277 CVLSP	0.000	3.858	9.513	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

**(U) A. Mission Description and Budget Item Justification**

The Common Vertical Lift Support Platform (CVLSP) core missions are to provide nuclear convoy weapon escort, 24/7 adverse weather capable Inter-Continental Ballistic Missile (ICBM) emergency security response /operational support, and mass passenger transport/Operational Support Airlift (OSA) in the National Capital Region. Other assigned missions include Pacific Air Forces (PACAF) OSA, survival school support, test and range support, and combat aviation advisor training.

Budget Justification: RDT&E funding includes, but is not limited to, System Program Office development of program Milestone B documentation and source selection, activities associated with Request for Proposal (RFP) development and release, and source selection followed by Engineering and Manufacturing Development (EMD) activities including non-recurring engineering, test vehicle hardware, software, and data acquisition.

**(U) B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget		3.868	0.000
(U) Current PBR/President's Budget	0.000	3.858	9.513
(U) Total Adjustments	0.000	-0.010	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.010	
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer			

**(U) Significant Program Changes:**

Funding for CVLSP was added into the budget in FY10 to support program activities in FY10.

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>					PE NUMBER AND TITLE <b>0604263F CVLSP</b>			PROJECT NUMBER AND TITLE <b>5277 CVLSP</b>		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5277 CVLSP	0.000	3.858	9.513	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

The Common Vertical Lift Support Platform (CVLSP) core missions are to provide nuclear convoy weapon escort, 24/7 adverse weather capable Inter-Continental Ballistic Missile (ICBM) emergency security response /operational support, and mass passenger transport/Operational Support Airlift (OSA) in the National Capital Region. Other assigned missions include Pacific Air Forces (PACAF) OSA, survival school support, test and range support, and combat aviation advisor training.

Budget Justification: RDT&E funding includes, but is not limited to, System Program Office development of program Milestone B documentation and source selection, activities associated with Request for Proposal (RFP) development and release, and source selection followed by Engineering and Manufacturing Development (EMD) activities including non-recurring engineering, test vehicle hardware, software, and data acquisition.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) System Program Office support to include, but not limited to, the development of program Milestone B documentation and source selection.		3.858	9.513
(U) Engineering and Manufacturing Development (EMD) to include but not limited to non-recurring engineering, test vehicle hardware, software, and data.			
(U) Total Cost	0.000	3.858	9.513

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) N/A										

**(U) D. Acquisition Strategy**

The CVLSP program is pursuing a Government-off-the-shelf (GOTS) solution to meet the requirements identified in the CVLSP Capability Development Document (CDD). Activities to support this strategy in FY10 include: system trade studies, development and release of the Request for Proposal (RFP).

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>07 Operational System Development</b>				<b>0604263F CVLSP</b>					<b>5277 CVLSP</b>			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> CVLSP Development Contract	CPIF/AF	TBD									0.000	
Subtotal Product Development			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Support</u> Development Planning Support	CPIF/AF	TBD				2.008		6.513			8.521	
Subtotal Support			0.000	0.000		2.008		6.513		0.000	8.521	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u> Test Support	TBD					0.050		0.200			0.250	
Subtotal Test & Evaluation			0.000	0.000		0.050		0.200		0.000	0.250	0.000
Remarks:												
(U) <u>Management</u> Program Office Support						1.800		2.800			4.600	
Subtotal Management			0.000	0.000		1.800		2.800		0.000	4.600	0.000
Remarks:												
(U) Total Cost			0.000	0.000		3.858		9.513		0.000	13.371	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0604263F CVLSP

PROJECT NUMBER AND TITLE  
5277 CVLSP

# CVLSP Schedule

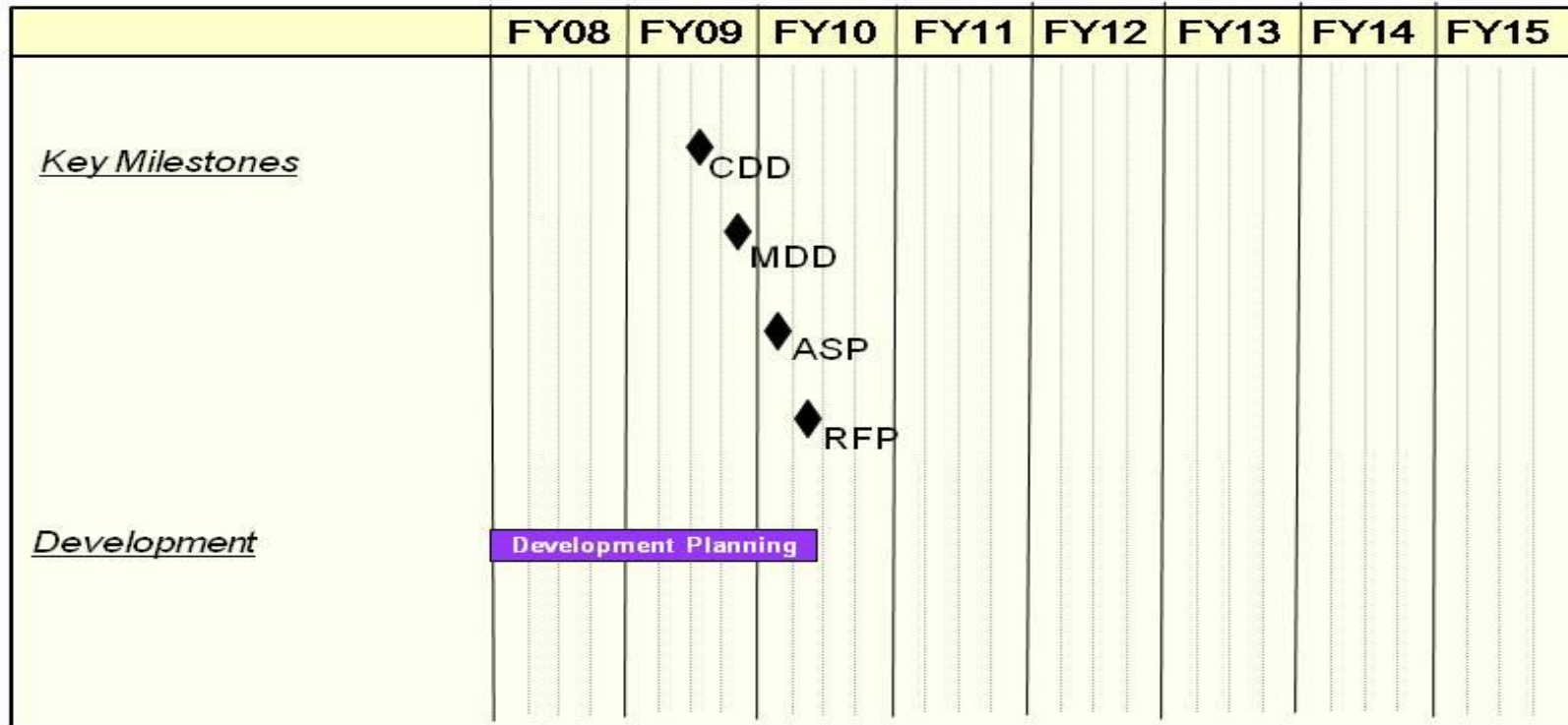


Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0604263F CVLSP

PROJECT NUMBER AND TITLE

5277 CVLSP

(U) Schedule Profile

FY 2008

FY 2009

FY 2010

(U) Develop Acquisition Strategy

2-4Q

(U) Capability Development Decision (CDD) Approval

3Q

(U) Material Development Decision (MDD) Review

4Q

(U) Develop Request for Proposal (RFP)

4Q

(U) Acquisition Strategy Panel

1Q

(U) Release RFP

2Q

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PE NUMBER: 0605024F  
 PE TITLE: Anti-Tamper Technology Executive Agent

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0605024F Anti-Tamper Technology Executive Agent</b>
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	12.399	20.912	47.276	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5066 Anti-Tamper Technology Executive Agent	12.399	20.912	47.276	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

**(U) A. Mission Description and Budget Item Justification**

The Air Force is the DoD Anti-Tamper Executive Agent (ATEA). The ATEA is responsible for implementing Anti-Tamper (AT) policy, coordinating and providing financial support for AT technology development, establishing and maintaining a data bank/library, providing proper security mechanisms, conducting effective validation and assessing AT implementations. The purpose of developing AT techniques is to protect critical technologies in U.S. weapon systems that may be sold to foreign governments or that could possibly fall into enemy hands. AT technology will permit the U.S. to preserve its critical weapons systems lead while also satisfying customer needs. Furthermore, AT will add longevity to critical technologies by deterring efforts to reverse engineer or develop weapon countermeasures against a system or system component.

As the DoD Anti-Tamper Executive Agent, the Air Force will coordinate the technology development enhancement among the Services, DoD Agencies, and laboratories, and with industry. The DoD ATEA will not issue contracts for AT technology development but will plus-up existing Anti-Tamper technology projects to increase their technology readiness level. Priorities will be given to technologies that benefit the majority of the AT community. The Anti-Tamper technology enhancement will occur in the following areas: advanced sensor hardware, generic electronic hardware, signature control, access detection & denial, software, and effectiveness. The program management activities will coordinate the technology development and establish the Anti-Tamper data bank/library.

Anti-Tamper validation is a significant responsibility assigned to the Air Force. All DoD acquisition programs, Foreign Military Sales, and Direct Commercial Sales with critical technology/critical information are required to have an Anti-Tamper plan with appropriate validation. The resources required to review Anti-Tamper plans and conduct Anti-Tamper validation began to increase in late FY03. Based on Anti-Tamper validation requirement projections, the number of Anti-Tamper experts needs to expand.

Beginning in FY09 additional funding has been dedicated to the technical development of new AT capabilities. Emerging research in the areas of materials, cryptography and electronic circuits has the potential to bring new AT capabilities that have reduced power needs, a smaller form factor, and less detectability by nation class adversary using state of the art reverse engineering tools. The goal of the reserach is to mature promising technologies to the point that they can be transitioned to a program office or industry prime for implementation in our weapons systems.

This program is in Budget Activity 07, Operational System Development, because it includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding.

Exhibit R-2, RDT&E Budget Item Justification

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0605024F Anti-Tamper Technology Executive Agent

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	12.399	20.912	47.276
(U) Current PBR/President's Budget	12.399	20.912	47.276
(U) Total Adjustments	0.000	0.000	
(U) Congressional Program Reductions			
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer			
(U) <u>Significant Program Changes:</u>			
None			



<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> 07 Operational System Development				<b>PE NUMBER AND TITLE</b> 0605024F Anti-Tamper Technology Executive Agent				<b>PROJECT NUMBER AND TITLE</b> 5066 Anti-Tamper Technology Executive Agent		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5066 Anti-Tamper Technology Executive Agent	12.399	20.912	47.276	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

The Air Force is the DoD Anti-Tamper Executive Agent (ATEA). The ATEA is responsible for implementing Anti-Tamper (AT) policy, coordinating and providing financial support for AT technology development, establishing and maintaining a data bank/library, providing proper security mechanisms, conducting effective validation and assessing AT implementations. The purpose of developing AT techniques is to protect critical technologies in U.S. weapon systems that may be sold to foreign governments or that could possibly fall into enemy hands. AT technology will permit the U.S. to preserve its critical weapons systems lead while also satisfying customer needs. Furthermore, AT will add longevity to critical technologies by deterring efforts to reverse engineer or develop weapon countermeasures against a system or system component.

As the DoD Anti-Tamper Executive Agent, the Air Force will coordinate the technology development enhancement among the Services, DoD Agencies, and laboratories, and with industry. The DoD ATEA will not issue contracts for AT technology development but will plus-up existing Anti-Tamper technology projects to increase their technology readiness level. Priorities will be given to technologies that benefit the majority of the AT community. The Anti-Tamper technology enhancement will occur in the following areas: advanced sensor hardware, generic electronic hardware, signature control, access detection & denial, software, and effectiveness. The program management activities will coordinate the technology development and establish the Anti-Tamper data bank/library.

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This program is in Budget Activity 07, Operational System Development, because it includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding.

Exhibit R-2a, RDT&E Project Justification

DATE

May 2009

BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0605024F Anti-Tamper Technology Executive Agent</b>	PROJECT NUMBER AND TITLE <b>5066 Anti-Tamper Technology Executive Agent</b>
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(U) <b>B. Accomplishments/Planned Program (\$ in Millions)</b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) AFRL/SNT Management	1.723	2.213	2.419
(U) ATEA Other - Outsource	0.722	0.410	0.550
(U) Anti-Tamper Verification & Validation	3.142	4.347	4.340
(U) Anti-Tamper Assessments	5.181	3.088	5.660
(U) Anti-Tamper Technology Development	1.631	10.854	34.307
(U)			
(U) Total Cost	12.399	20.912	47.276

(U) <b>C. Other Program Funding Summary (\$ in Millions)</b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) N/A										

(U) **D. Acquisition Strategy**  
 The DoD ATEA technology development enhancement funding will be used to support existing AT technology development contracts. This funding will be used to increase the technology readiness level for that particular AT technology so as to reduce the risk to programs wanting to implement this AT technology. The DoD ATEA conducts yearly evaluations of technologies, provided by the AT Tri-Service community.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>07 Operational System Development</b>				<b>0605024F Anti-Tamper Technology Executive Agent</b>					<b>5066 Anti-Tamper Technology Executive Agent</b>			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2008 Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date	Cost to Complete	Total Cost	Target Value of Contract
(U) <u>AFRL/SNT Management</u>												
Program Oversight				0.822		1.280		1.043		Continuing	TBD	TBD
Security/Infrastructure				0.223		0.257		0.265		Continuing	TBD	TBD
Databases and websight				0.355		0.460		0.701		Continuing	TBD	
Education and Outreach				0.323		0.216		0.410		Continuing	TBD	
Subtotal AFRL/SNT Management			0.000	1.723		2.213		2.419		Continuing	TBD	TBD
Remarks:												
(U) <u>ATEA Other Outsource</u>												
Conference outsource				0.068		0.060		0.050		Continuing	TBD	TBD
AFRL/AT-SPI	Allot			0.017		0.065		0.075		Continuing	TBD	TBD
AT Course				0.138		0.125		0.055		Continuing	TBD	TBD
DAU Course				0.000		0.068		0.065		Continuing	TBD	TBD
Sandia National Lab				0.500		0.092		0.305		Continuing	TBD	TBD
Subtotal ATEA Other Outsource			0.000	0.723		0.410		0.550		Continuing	TBD	TBD
Remarks:												
(U) <u>Anti-Tamper Verification &amp; Validation</u>												
Army	MIPR			0.800		0.800		0.810		Continuing	TBD	
Navy	MIPR			0.475		0.800		0.810		Continuing	TBD	
Air Force	MIPR			0.800		0.800		0.810		Continuing	TBD	
Sandia	MIPR			0.678		0.648		0.720		Continuing	TBD	
AT-SPI SW AT support				0.115		0.324		0.354			0.793	
AT-SPI IRCM AT Support				0.274		0.000					0.274	
V&V Contingency				0.000		0.975		0.100			1.075	
Network Training				0.000		0.000		0.056			0.056	
Sandia V&V Training	MIPR			0.000		0.000		0.680			0.680	
Subtotal Anti-Tamper Verification & Validation			0.000	3.142		4.347		4.340		Continuing	TBD	0.000
Remarks:												
(U) <u>Anti-Tamper Assessments</u>												
Air Force AT Field Agent (412 TW/EWF)	MIPR										0.000	
AFRL/SND				0.400							0.400	
NAWC CRANE (Navy)	MIPR			0.630		0.425		0.975			2.030	
Army AT Field Agent (Aviation & Missile Cmd/Redstone)	MIPR							0.560			0.560	
DoD Executive Agent Field Agent (AFRL/AT-SPI)	Allot										0.000	
Sandia National Lab	MIPR			4.151		2.580		2.900		Continuing	TBD	
Assessment Contract Activities				0.000		0.083		1.225			1.308	
Subtotal Anti-Tamper Assessments			0.000	5.181		3.088		5.660		Continuing	TBD	0.000

R-1 Line Item No. 115

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Project 5066

Exhibit R-3 (PE 0605024F)

Exhibit R-3, RDT&E Project Cost Analysis

DATE

May 2009

BUDGET ACTIVITY		PE NUMBER AND TITLE			PROJECT NUMBER AND TITLE				
<b>07 Operational System Development</b>		<b>0605024F Anti-Tamper Technology Executive Agent</b>			<b>5066 Anti-Tamper Technology Executive Agent</b>				
Remarks:									
<u>Anti-Tamper Technology Development</u>									
(U)	<u>Enhancements</u>								
	AFRL/AT-SPI	PRDA					0.000		
	Sandia National Lab	MIPR					0.000		
	Technology Contract Activities		1.630	10.854	34.307		46.791		
	Subtotal Anti-Tamper Technology Development Enhancements		0.000	1.630	10.854	34.307	0.000	46.791	0.000
Remarks:									
(U)	<u>New Activity Funds</u>								
	New Activity Funds		0.000			Continuing	TBD		
	Subtotal New Activity Funds		0.000	0.000	0.000	Continuing	TBD	0.000	
Remarks:									
(U)	Total Cost		0.000	12.399	20.912	47.276	Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0605024F Anti-Tamper Technology  
Executive Agent

PROJECT NUMBER AND TITLE  
5066 Anti-Tamper Technology  
Executive Agent

PE 0605024F - Anti-Tamper Executive Agency

FUNCTIONS	FY08				FY09				FY10			
	1	2	3	4	1	2	3	4	1	2	3	4
<b>ATEA Field Office</b>												
Databases & Website Updates & Maintenance												
Education & Outreach												
<b>ATEA Other</b>												
AT Conference			▲				▲					▲
<b>V&amp;V</b>												
Program V&V Evaluations												
<b>Assessment</b>												
Review Assessment Proposals												
Tri-Service Coordination												
Reviews												
<b>Technology Enhancement</b>												
Review Technology Proposals												
Tri-Service Coordination												
Reviews												

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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0605024F Anti-Tamper Technology Executive Agent</b>	<b>PROJECT NUMBER AND TITLE</b> <b>5066 Anti-Tamper Technology Executive Agent</b>
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	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) <b><u>Schedule Profile</u></b>			
(U) ATEA Field Office	1-4Q	1-4Q	1-4Q
(U) Database and Website Updates & Maintenance	1-4Q	1-4Q	1-4Q
(U) Education & Outreach	1-4Q	1-4Q	1-4Q
(U) AT Conference	2-3Q	2-3Q	2-3Q
(U) Program V&V Evaluations	1-4Q	1-4Q	1-4Q
(U) Assessments	2-3Q	2-3Q	2-3Q
(U) --Assessment Proposal Reviews	2Q	2Q	2Q
(U) --Assessment Tri-Service Coordination	3Q	3Q	3Q
(U) Anti-Tamper Technology Development Enhancement	1-4Q	1-4Q	1-4Q
(U) --Tech. Proposal Reviews	2Q	2Q	2Q
(U) --Technology Tri-Service Coordination	3Q	3Q	3Q
(U) --Tech Reviews	4Q	4Q	4Q

**UNCLASSIFIED**

PE NUMBER: 0101113F  
 PE TITLE: B-52 SQUADRONS

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>May 2009</b>
---	-------------------------

<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0101113F B-52 SQUADRONS</b>
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	51.336	38.546	93.930	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5039 B-52 Modernization	51.336	38.546	93.930	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

**(U) A. Mission Description and Budget Item Justification**

B-52 Modernization is a comprehensive program to assure B-52 viability to perform future wartime missions. B-52 modernization (initiated in FY05) integrates and adds both tactical and global data link communications for real time command and control, targeting, intelligence and upgrades antiquated air traffic management systems with those supported by three key functions using satellite technology: Communications, Navigation and Surveillance. Modernization also upgrades training devices to support aircrew and maintenance training with the latest B-52 capability. In addition, modernization improves conventional warfare capability with additional MIL-STD-1760 smart weapons and fully integrates advanced targeting pods with the offensive avionics system.

**CONNECT**

The B-52 Combat Network Communication Technology (CONNECT) acquisition program will support nuclear and conventional operations by upgrading the B-52 fleet with tactical data link and voice communications capabilities along with improved threat and situational awareness to support participation in network centric operations. The CONNECT upgrade includes new Multi-Functional Color Displays (MFCDs) and a digital interphone system which will survive and function through the nuclear environment to enhance crew interaction and situational awareness. To enable net centric operations, the CONNECT upgrade integrates: on-board client/server architecture supporting distributed processing with independent control functions; UHF Beyond Line-Of-Sight (BLOS) Joint Range Extension (JRE) capability via ARC-210 Warrior radio to exchange J-Series messaging within theater; Intelligence Broadcast Receiver; limited Internet Protocol (IP)-based UHF BLOS link supporting email and file transfers; and Improved Data Modem (IDM)-based digital Variable Message Format (VMF) datalink to significantly enhance close air support (CAS) missions. This integrated suite will provide the B-52 fleet with a machine-to-machine capability supporting aircraft re-tasking and re-targeting of Conventional Air Launched Cruise Missile (CALCM) and J-series weapons across the range of military operations the B-52 is assigned.

**B-52 EHF**

B-52 EHF will provide the B-52 fleet with assured and survivable two-way Extremely High Frequency (EHF) SATCOM link for emergency action messages (EAMs) and report-backs to meet Joint Chiefs of Staff (JCS) nuclear protected Information Exchange Requirements (IER). B-52 EHF will integrate the Family of Advanced Beyond Line of Sight (BLOS) Terminals (FAB-T) Increment 1 system developed and procured by Electronic Systems Center (ESC) through PE 0303601F. The FAB-T system consists of the Operator Interface Group, Modem Processor Group, Antenna Group, and Radome. B-52 EHF will integrate the following capabilities into CONNECT: a high data rate BLOS communication link supporting IP-based Global Information Grid (GIG) interoperability; two additional Multi-Functional Color Displays (MFCDs) which will survive and function through the nuclear environment; automated reporting of aircraft fuel level status off-board the jet; additional J-series messages; and additional software for integration.

**Trainers & CONNECT**

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

May 2009

## BUDGET ACTIVITY

**07 Operational System Development**

## PE NUMBER AND TITLE

**0101113F B-52 SQUADRONS**

In order to maintain currency with the latest aircraft configuration, the CONECT and EHF programs will update existing trainers or use computer-based training to add CONECT and EHF functionality to meet user-training requirements, and establish a system integration laboratory for updates of the Weapon System Trainers.

## Weapons Improvements

B-52 Modernization also includes improvement of conventional warfare capability. This effort provides development and testing to rapidly integrate weapons with a large array of properties, but not limited to: stealth, hard target penetration, standoff, adverse weather, precision strike, loiter, decoy, defense suppression, post-release/launch re-target capability, area denial, mobile targets, and multiple simultaneous attack. These capabilities are provided through the integration of advanced weapons both internally (MIL-STD-1760 in the bomb bay) and externally.

## Advanced Targeting Pod Functionality

The B-52 Modernization program fully integrates the Advanced Targeting Pod (ATP) by linking pod control, display and target geo-location with the B-52 offensive avionics system. The B-52 ATP effort continues the ATP (Sniper or LITENING) integration effort which began in FY07 with GWOT funding. The ATP effort develops aircraft software updates to add and incorporate advanced pod functionality into the B-52. In addition, this effort upgrades the software functions of the Alternate Mission Equipment (AME) (Multi Function Display and the Integrated Hand Controller), and enables the B-52 to utilize a LITENING, or Sniper pod. This effort provides hardware and software upgrades to the existing aircrew/maintenance trainers and the system integration lab.

## B-52 Communication Navigation Surveillance/Air Traffic Management (CNS/ATM)

The Communication Navigation Surveillance/Air Traffic Management effort, will develop and integrate modern technology into the B-52 to enable it to operate in the evolving air traffic environment. This effort is driven by the International Civil Aviation Organization (ICAO) and Federal Aviation Administration (FAA) mandates to comply with performance standards to allow the B-52 to operate safely in controlled airspaces. This program will also yield significant savings through more efficient flight routes and altitudes. Functions requiring updated technology in the B-52 are communications, navigation, and surveillance. More specifically the capabilities upgraded under CNS/ATM activities will include FM Immunity, Digital Communications (voice to data), improved navigation accuracy such as Required Navigation Performance (RNP) or Global Positioning System (GPS) enhancements, Reduced Vertical Separation Minimum (RVSM), Traffic Alert and Collision Avoidance System (TCAS), enhanced situational awareness such as Mode S/Mode 5 Identify Friend or Foe (IFF), Communications Management Unit, HF Data Link, 8.33MHz VHF, Auto Dependent Surveillance (both address and broadcast), and any follow-on activities to associated components/systems resulting from modifications to CNS/ATM systems.

## Replace B-52 Anti-Skid

The B-52 Anti-Skid is a system used to maintain control of aircraft during landings and taxi operations. Anti-skid automatically activates the brake system without crew input to insure safe operation of aircraft on the ground. Aircraft not equipped with anti-skid capabilities require special procedures not conducive to normal operations and face increased risk of damage during taxi, landings and emergency stops. Ogden Air Logistics Center (OO-ALC) has identified the Anti-Skid skid detector as a Diminishing Manufacturing Sources (DMS) item that will need to be replaced beginning in FY11. The Anti-Skid is a joint effort between OO-ALC and Oklahoma City Air Logistics Center (OC-ALC). This effort covers costs associated with the Group A and Group B hardware Development, flight test costs, and



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**0101113F B-52 SQUADRONS**

installation of the system to include upgrade of the maintenance trainers.

#### Strategic Radar Replacement

The Strategic Radar Replacement Program replaces the current B-52 Strategic Radar which was installed in the 1980s and is estimated to be unsupportable by 2016. Although this system has been modified several times since 1980, it has never been totally replaced. Several parts of the system remain from the original design such as the antenna reflector, feed, and casting. The system is showing increasing signs of performance degradation, reliability and maintainability issues, and design limitations. This radar replacement program is a Reliability & Maintainability (R&M) modification which will take advantage of technical insertion to capture the advanced capabilities of Non-Developmental Item (NDI) radars, maximizing commonality with other platforms. There have been significant advances in radar technology over the past 20 years and it is no longer reasonable to update the existing hardware. The current radar system uses a mechanically scanned antenna. Current radar technology involves electronically scanned arrays with greatly increased performance and reliability. The Strategic Radar Replacement Program will develop, integrate, test, and field a modern radar system.

#### Test & Evaluation

B-52 Modernization funds test activities at the Air Force Flight Test Center (AFFTC), engineering and planning studies for potential future weapon system enhancements (weapons, sensors, and avionics), upgrades to the B-52 System Integration Laboratory (SIL) and weapon system operational/safety, supportability, reliability, and Total Ownership Cost (TOC) improvements.

#### Additional Efforts

B-52 Modernization funds additional efforts that stem from the operation and maintenance of a 48 year-old aircraft, such as parts obsolescence and Diminishing Manufacturing Sources (DMS). Examples include, but are not limited to upgrades to outdated avionics computers, mission planning interface to the Air Force Mission Support System (AFMSS) and upgrades to the Electronic Countermeasures (ECM) suite, and studies and analysis.

All B-52 development programs support planned requirements for unique identification in their production phases. The B-52 Modernization upgrade program is included in Budget Activity (BA) 7, Operational System Development.

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(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	42.121	38.651	68.381
(U) Current PBR/President's Budget	51.336	38.546	93.930
(U) Total Adjustments	9.215	-0.105	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.105	
Congressional Increases			
Reprogrammings	10.363		
SBIR/STTR Transfer	-1.148		

(U) **Significant Program Changes:**

FY08 - Increase of \$9.215M reprogramming for B-52 CONECT efforts.

FY10 - Increase of \$25.6M for B-52 CONECT development (+\$17.3), B-52 Anti-Skid replacement program (+\$.8M), Advanced Targeting Pod program (+\$3.7M), Strategic Radar Replacement program (+\$12.4M) and a one-year slip to the Mode S/5 program (-\$8.6M).

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BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE			
<b>07 Operational System Development</b>				<b>0101113F B-52 SQUADRONS</b>				<b>5039 B-52 Modernization</b>			
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total	
5039 B-52 Modernization	51.336	38.546	93.930	0.000	0.000	0.000	0.000	0.000	Continuing	TBD	
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0			

**(U) A. Mission Description and Budget Item Justification**

B-52 Modernization is a comprehensive program to assure B-52 viability to perform future wartime missions. B-52 modernization (initiated in FY05) integrates and adds both tactical and global data link communications for real time command and control, targeting, intelligence and upgrades antiquated air traffic management systems with those supported by three key functions using satellite technology: Communications, Navigation and Surveillance. Modernization also upgrades training devices to support aircrew and maintenance training with the latest B-52 capability. In addition, modernization improves conventional warfare capability with additional MIL-STD-1760 smart weapons and fully integrates advanced targeting pods with the offensive avionics system.

**CONNECT**

The B-52 Combat Network Communication Technology (CONNECT) acquisition program will support nuclear and conventional operations by upgrading the B-52 fleet with tactical data link and voice communications capabilities along with improved threat and situational awareness to support participation in network centric operations. The CONNECT upgrade includes new Multi-Functional Color Displays (MFCDs) and a digital interphone system which will survive and function through the nuclear environment to enhance crew interaction and situational awareness. To enable net centric operations, the CONNECT upgrade integrates: on-board client/server architecture supporting distributed processing with independent control functions; UHF Beyond Line-Of-Sight (BLOS) Joint Range Extension (JRE) capability via ARC-210 Warrior radio to exchange J-Series messaging within theater; Intelligence Broadcast Receiver; limited Internet Protocol (IP)-based UHF BLOS link supporting email and file transfers; and Improved Data Modem (IDM)-based digital Variable Message Format (VMF) datalink to significantly enhance close air support (CAS) missions. This integrated suite will provide the B-52 fleet with a machine-to-machine capability supporting aircraft re-tasking and re-targeting of Conventional Air Launched Cruise Missile (CALCM) and J-series weapons across the range of military operations the B-52 is assigned.

**B-52 EHF**

B-52 EHF will provide the B-52 fleet with assured and survivable two-way Extremely High Frequency (EHF) SATCOM link for emergency action messages (EAMs) and report-backs to meet Joint Chiefs of Staff (JCS) nuclear protected Information Exchange Requirements (IER). B-52 EHF will integrate the Family of Advanced Beyond Line of Sight (BLOS) Terminals (FAB-T) Increment 1 system developed and procured by Electronic Systems Center (ESC) through PE 0303601F. The FAB-T system consists of the Operator Interface Group, Modem Processor Group, Antenna Group, and Radome. B-52 EHF will integrate the following capabilities into CONNECT: a high data rate BLOS communication link supporting IP-based Global Information Grid (GIG) interoperability; two additional Multi-Functional Color Displays (MFCDs) which will survive and function through the nuclear environment; automated reporting of aircraft fuel level status off-board the jet; additional J-series messages; and additional software for integration.

**Trainers & CONNECT**

In order to maintain currency with the latest aircraft configuration, the CONNECT and EHF programs will update existing trainers or use computer-based training to add

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**07 Operational System Development**

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**0101113F B-52 SQUADRONS**

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**5039 B-52 Modernization**

CONNECT and EHF functionality to meet user-training requirements, and establish a system integration laboratory for updates of the Weapon System Trainers.

## Weapons Improvements

B-52 Modernization also includes improvement of conventional warfare capability. This effort provides development and testing to rapidly integrate weapons with a large array of properties, but not limited to: stealth, hard target penetration, standoff, adverse weather, precision strike, loiter, decoy, defense suppression, post-release/launch re-target capability, area denial, mobile targets, and multiple simultaneous attack. These capabilities are provided through the integration of advanced weapons both internally (MIL-STD-1760 in the bomb bay) and externally.

## Advanced Targeting Pod Functionality

The B-52 Modernization program fully integrates the Advanced Targeting Pod (ATP) by linking pod control, display and target geo-location with the B-52 offensive avionics system. The B-52 ATP effort continues the ATP (Sniper or LITENING) integration effort which began in FY07 with GWOT funding. The ATP effort develops aircraft software updates to add and incorporate advanced pod functionality into the B-52. In addition, this effort upgrades the software functions of the Alternate Mission Equipment (AME) (Multi Function Display and the Integrated Hand Controller), and enables the B-52 to utilize a LITENING, or Sniper pod. This effort provides hardware and software upgrades to the existing aircrew/maintenance trainers and the system integration lab.

## B-52 Communication Navigation Surveillance/Air Traffic Management (CNS/ATM)

The Communication Navigation Surveillance/Air Traffic Management effort, will develop and integrate modern technology into the B-52 to enable it to operate in the evolving air traffic environment. This effort is driven by the International Civil Aviation Organization (ICAO) and Federal Aviation Administration (FAA) mandates to comply with performance standards to allow the B-52 to operate safely in controlled airspaces. This program will also yield significant savings through more efficient flight routes and altitudes. Functions requiring updated technology in the B-52 are communications, navigation, and surveillance. More specifically the capabilities upgraded under CNS/ATM activities will include FM Immunity, Digital Communications (voice to data), improved navigation accuracy such as Required Navigation Performance (RNP) or Global Positioning System (GPS) enhancements, Reduced Vertical Separation Minimum (RVSM), Traffic Alert and Collision Avoidance System (TCAS), enhanced situational awareness such as Mode S/Mode 5 Identify Friend or Foe (IFF), Communications Management Unit, HF Data Link, 8.33MHz VHF, Auto Dependent Surveillance (both address and broadcast), and any follow-on activities to associated components/systems resulting from modifications to CNS/ATM systems.

## Replace B-52 Anti-Skid

The B-52 Anti-Skid is a system used to maintain control of aircraft during landings and taxi operations. Anti-skid automatically activates the brake system without crew input to insure safe operation of aircraft on the ground. Aircraft not equipped with anti-skid capabilities require special procedures not conducive to normal operations and face increased risk of damage during taxi, landings and emergency stops. Ogden Air Logistics Center (OO-ALC) has identified the Anti-Skid skid detector as a Diminishing Manufacturing Sources (DMS) item that will need to be replaced beginning in FY11. The Anti-Skid is a joint effort between OO-ALC and Oklahoma City Air Logistics Center (OC-ALC). This effort covers costs associated with the Group A and Group B hardware Development, flight test costs, and installation of the system to include upgrade of the maintenance trainers.

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**5039 B-52 Modernization**

**Strategic Radar Replacement**

The Strategic Radar Replacement Program replaces the current B-52 Strategic Radar which was installed in the 1980s and is estimated to be unsupportable by 2016. Although this system has been modified several times since 1980, it has never been totally replaced. Several parts of the system remain from the original design such as the antenna reflector, feed, and casting. The system is showing increasing signs of performance degradation, reliability and maintainability issues, and design limitations. This radar replacement program is a Reliability & Maintainability (R&M) modification which will take advantage of technical insertion to capture the advanced capabilities of Non-Developmental Item (NDI) radars, maximizing commonality with other platforms. There have been significant advances in radar technology over the past 20 years and it is no longer reasonable to update the existing hardware. The current radar system uses a mechanically scanned antenna. Current radar technology involves electronically scanned arrays with greatly increased performance and reliability. The Strategic Radar Replacement Program will develop, integrate, test, and field a modern radar system.

**Test & Evaluation**

B-52 Modernization funds test activities at the Air Force Flight Test Center (AFFTC), engineering and planning studies for potential future weapon system enhancements (weapons, sensors, and avionics), upgrades to the B-52 System Integration Laboratory (SIL) and weapon system operational/safety, supportability, reliability, and Total Ownership Cost (TOC) improvements.

**Additional Efforts**

B-52 Modernization funds additional efforts that stem from the operation and maintenance of a 48 year-old aircraft, such as parts obsolescence and Diminishing Manufacturing Sources (DMS). Examples include, but are not limited to upgrades to outdated avionics computers, mission planning interface to the Air Force Mission Support System (AFMSS) and upgrades to the Electronic Countermeasures (ECM) suite, and studies and analysis.

All B-52 development programs support planned requirements for unique identification in their production phases. The B-52 Modernization upgrade program is included in Budget Activity (BA) 7, Operational System Development.

<b>(U) B. Accomplishments/Planned Program (\$ in Millions)</b>	<b><u>FY 2008</u></b>	<b><u>FY 2009</u></b>	<b><u>FY 2010</u></b>
(U) Common Reconfigurable Advanced Thermal Management System	0.482		
(U) Advanced Targeting Pod Functions	0.980	3.459	3.685
(U) Pod Software Trainer Upgrades	4.000		
(U) Advanced Targeting Pod Flight Test	0.120		
(U) Advanced Targeting Pod Management Support	0.100		
(U) CONECT Product Development	39.855	18.232	20.074
(U) CONECT/EHF Simulation/Trainer Development	0.510	3.572	24.830
(U) CONECT Government Test	1.600	3.639	3.133
(U) CONECT/EHF Program Support/Modeling and Simulation/Studies and Analysis	1.339	1.053	1.126
(U) CONECT/EHF Program Management Support	2.350	5.591	5.954

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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0101113F B-52 SQUADRONS</b>	<b>PROJECT NUMBER AND TITLE</b> <b>5039 B-52 Modernization</b>
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<b>(U) B. Accomplishments/Planned Program (\$ in Millions)</b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) EHF Product Development		3.000	21.908
(U) Replace B-52 Anti-Skid			0.795
(U) Strategic Radar Replacement			12.425
(U) Total Cost	51.336	38.546	93.930

<b>(U) C. Other Program Funding Summary (\$ in Millions)</b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) APAF, PE 0101113F, B52 Squadrons, Aircraft Procurement BP11, Mods	42.645	41.581	78.788						Continuing	TBD
(U) APAF, PE 0101113F, B52 Squadrons, Aircraft Procurement BP16, Initial Spares	0.039	0.063	8.487						Continuing	TBD

**(U) D. Acquisition Strategy**  
 B-52 Modernization is a comprehensive program to assure B-52 viability to perform future wartime missions. The B-52 CONECT EMD prime contract is sole source to Boeing, Wichita, KS. Boeing will design, develop, test and procure the necessary equipment from their subcontractors; develop engineering drawings, logistic and technical data, and time compliance technical order (TCTO) for installation on the B-52. The EMD effort includes installing and testing CONECT equipment on a B-52 aircraft. The B-52 trainer will be modified to support the CONECT modification through OO-ALC via their trainer contract with Rockwell Collins, Sterling, VA.

The B-52 EHF EMD prime contract is sole source to Boeing, Wichita, KS. Boeing will integrate the Government Furnished Equipment (GFE) Family of Beyond-Line-Of-Sight Terminals (FAB-T); develop engineering drawings, logistic and technical data, and time compliance technical order (TCTO) for installation on the B-52. The EMD effort includes installing and testing EHF equipment on a B-52 aircraft. The B-52 trainer will be modified to support the EHF modification through OO-ALC via their trainer contract with Rockwell Collins, Sterling, VA.

The B-52 Advanced Targeting Pod (ATP) Program managed by the the B-52 System Program Office (SPO) sole sourced the software development contract to Boeing, Wichita. The ATP trainer development contract will be awarded by OO-ALC via their trainer contract with Rockwell Collins, Sterling VA.

The B-52 Anti-Skid program is a joint effort between OC-ALC and OO-ALC. The modification will be implemented via Program Depot Maintenance and Contract Field Team.

The Strategic Radar Replacement program is planned to be a sole-source contract to Boeing, Wichita KS.

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**Exhibit R-3, RDT&E Project Cost Analysis**

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**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>07 Operational System Development</b>				<b>0101113F B-52 SQUADRONS</b>					<b>5039 B-52 Modernization</b>			
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
CONECT EMD	CPFF	Boeing, Wichita KS	64.920	39.855		18.232		20.074		Continuing	TBD	
B-52 EHF EMD	TBD	Boeing, Wichita KS				3.000		21.908		Continuing	TBD	
1760 Studies and Analysis	T&M	Boeing, Wichita KS									0.000	
Advanced Pod Functions	Various	Boeing, Wichita KS	0.000	0.980	Sep-08			3.685			4.665	
Common Reconfigurable Advanced Thermal Management System	MIPR	ISR (SprayCool Technology) and Wichita State University, Wichita KS	1.000	0.482							1.482	
B-52 Communication Navigation/Surveillance/Air Traffic Management	Engineering Assignment T&M	Boeing, Wichita KS								Continuing	TBD	
Strategic Radar Replacement	TBD	TBD						12.208	Jan-10		12.208	
Subtotal Product Development			65.920	41.317		21.232		57.875		Continuing	TBD	0.000
Remarks:												
(U) <u>Support</u>												
CONECT Simulator/Trainer	616	509 ACSS, OO-ALC, UT	18.810	0.510		3.572		19.118		Continuing	TBD	
B-52 EHF Simulator/Trainer	616	509 ACSS, OO-ALC, UT						1.612		Continuing	TBD	
B-52 EHF Satellite Simulator - Lincoln Labs (FFRDC)								4.000			4.000	
CONECT Program Support, Studies & Analysis	Various		2.039	1.339		1.093		1.126		Continuing	TBD	
B-52 EHF Program Support, Studies & Analysis	Various							0.100		Continuing	TBD	
Pod Software Trainer Upgrades	Contract	OO-ALC	0.000	4.000	Nov-08						4.000	
Strategic Radar Replacement	TBD	TBD									0.000	
Subtotal Support			20.849	5.849		4.665		25.956		Continuing	TBD	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
CONECT 419 FLTS	Project Order	Edwards AFB, CA	2.188	1.300		3.274				Continuing	TBD	
B-52 EHF 419 FLTS	Project Order	Edwards AFB, CA						3.092		Continuing	TBD	

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Project 5039

Exhibit R-3 (PE 0101113F)

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**Exhibit R-3, RDT&E Project Cost Analysis**

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BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE			
<b>07 Operational System Development</b>				<b>0101113F B-52 SQUADRONS</b>				<b>5039 B-52 Modernization</b>			
CONECT JTIC	MIPR	Fort Huachuca, AZ	0.384	0.300	0.365			Continuing	TBD		
B-52 EHF JTIC	MIPR	Fort Huachuca, AZ					0.041	Continuing	TBD		
Advanced Pod Test 419 FLTS	Project Order	Edwards AFB, CA		0.120	Feb-08	3.459	Dec-09			3.579	
Subtotal Test & Evaluation			2.572	1.720	7.098		3.133	Continuing	TBD	0.000	
Remarks:											
(U) <u>Management</u>											
CONECT 651 AESS		Wright-Patters on AFB, OH	2.205	1.412	4.525		3.136	Continuing	TBD		
B-52 EHF 651 AESS		Wright-Patters on AFB, OH					2.023	Continuing	TBD		
CONECT 327 ACSG		Tinker AFB, OK	0.758	0.938	1.026			Continuing	TBD		
B-52 EHF 327 ACSG		Tinker AFB, OK					0.795	Continuing	TBD		
ATP Management Support				0.100						0.100	
Strategic Radar Replacement		Tinker AFB, OK					0.217			0.217	
Anti-Skid Replacement							0.795			0.795	
Subtotal Management			2.963	2.450	5.551		6.966	Continuing	TBD	0.000	
Remarks:											
(U) Total Cost			92.304	51.336	38.546		93.930	Continuing	TBD	0.000	



Exhibit R-4, RDT&E Schedule Profile

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BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0101113F B-52 SQUADRONS

PROJECT NUMBER AND TITLE  
5039 B-52 Modernization



U.S. AIR FORCE

# B-52H Modernization Schedule FY10PB

	FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY15
<b>ATP Integration</b>	S/W Integration Only							
<b>Strat Radar Replacement (SR2)</b>				<b>B</b>				
<b>Anti-Skid Replacement</b>								
<b>CONECT</b>				<b>C</b>				
<b>B-52 EHF</b>								



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Exhibit R-4a, RDT&E Schedule Detail

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BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0101113F B-52 SQUADRONS</b>	PROJECT NUMBER AND TITLE <b>5039 B-52 Modernization</b>
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(U) <u>Schedule Profile</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) CONECT EMD	1-4Q	1-4Q	1-4Q
(U) CONECT Flight Test Drop C		4Q	1Q
(U) CONECT LRIP Milestone C			3Q
(U) B-52 EHF EMD Increment 1		3-4Q	1-2Q
(U) B-52 EHF EMD Increment 2			2-4Q
(U) Anti-Skid EMD			2-4Q
(U) Anti-Skid Flight Test			4Q
(U) Strategic Radar Replacement EMD			2-4Q

**UNCLASSIFIED**

PE NUMBER: 0101122F  
 PE TITLE: AIR LAUNCHED CRUISE MISSILE

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>May 2009</b>
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BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0101122F AIR LAUNCHED CRUISE MISSILE</b>
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	4.514	0.395	3.652	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
4797 Flight Testing & Navigation Enhancement	4.514	0.395	3.652	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

**(U) A. Mission Description and Budget Item Justification**

The AGM-86B, Air Launched Cruise Missile (ALCM), is a subsonic, air-to-surface strategic nuclear missile, operational since 1982. Armed with a W-80 warhead, it is designed to evade air and ground-based defenses in order to strike targets at any location within any enemy's territory. The ALCM is designed for B-52H internal and external carriage.

A Service Life Extension Plan (SLEP) was developed to meet an AF Long Range Plan requirement to extend ALCM Service Life to FY30. The results of Service Life Extension Program (SLEP) studies identified system components that cannot be sustained beyond the standard service life. The current system is experiencing obsolescence of parts/components. Missile components and support equipment are becoming non-supportable. Service Life Extension of this critical weapon is essential to meet Air Combat Command (ACC) and United States Strategic Command (USSTRATCOM) commitments (also known as OPLAN 8010).

The W-80 LEP replaces warhead components to extend its service life. The National Nuclear Security Administration (NNSA) is responsible for most of the refurbishment costs associated with the W-80 warhead. The Air Force was responsible for funding ALCM W-80 integration. Integration included evaluation of interface control changes as part of the Initial Concept Design (ICD), missile testing, and logistics requirements necessary to support a First Production Unit (FPU) delivery in 2008. The W-80 LEP program has been archived.

Cruise Missile Functional Ground Testing (FGT) is required to provide the capability to non-destructively accomplish functional flight simulation of a full-up missile flight profile on the ground to obtain additional reliability data. This capability will provide critical reliability data without the costs of flight test missions and will also retain the missiles in the inventory. This effort will develop the software and hardware for an existing test facility for accomplishment of the ground tests.

Joint Test Assembly (JTA-1) Replacement Support: The W80-1 JTA (warhead flight test configuration) is becoming unsupportable with sunset technology. Update of this JTA was to be addressed within the W80 Life Extension Program (LEP). With the cancellation of the W80 LEP, the JTA replacement still needs to be accomplished, which will be led by NNSA. Air Force support is required to evaluate the interface changes, revise the W80-1 Interface Control Documents (ICDs), provide integration support, and flight test qualification.

Aging and surveillance program for ALCM critical components such as those in the safe arm and fuze subsystem, navigation/guidance system, and electrical/power distribution system. This is needed to identify aging trends prior to failures in fielded components that would result in fleet-wide reliability and supportability problems.

These programs are in Budget Activity 7, Operational System Development, due to efforts supporting a fielded, post Milestone III operational weapon system.

Exhibit R-2, RDT&E Budget Item Justification

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0101122F AIR LAUNCHED CRUISE MISSILE

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	4.642	0.396	0.414
(U) Current PBR/President's Budget	4.514	0.395	3.652
(U) Total Adjustments	-0.128	-0.001	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.001	
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer	-0.128		
(U) <u>Significant Program Changes:</u>			
In FY10, start Analysis of Alternatives (AOA) for future long range stand-off vehicle.			

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

May 2009

BUDGET ACTIVITY		PE NUMBER AND TITLE						PROJECT NUMBER AND TITLE		
07 Operational System Development		0101122F AIR LAUNCHED CRUISE MISSILE						4797 Flight Testing & Navigation Enhancement		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
4797 Flight Testing & Navigation Enhancement	4.514	0.395	3.652	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) **A. Mission Description and Budget Item Justification**

The AGM-86B, Air Launched Cruise Missile (ALCM), is a subsonic, air-to-surface strategic nuclear missile, operational since 1982. Armed with a W-80 warhead, it is designed to evade air and ground-based defenses in order to strike targets at any location within any enemy's territory. The ALCM is designed for B-52H internal and external carriage.

A Service Life Extension Plan (SLEP) was developed to meet an AF Long Range Plan requirement to extend ALCM Service Life to FY30. The results of Service Life Extension Program (SLEP) studies identified system components that cannot be sustained beyond the standard service life. The current system is experiencing obsolescence of parts/components. Missile components and support equipment are becoming non-supportable. Service Life Extension of this critical weapon is essential to meet Air Combat Command (ACC) and United States Strategic Command (USSTRATCOM) commitments (also known as OPLAN 8010).

The W-80 LEP replaces warhead components to extend its service life. The National Nuclear Security Administration (NNSA) is responsible for most of the refurbishment costs associated with the W-80 warhead. The Air Force was responsible for funding ALCM W-80 integration. Integration included evaluation of interface control changes as part of the Initial Concept Design (ICD), missile testing, and logistics requirements necessary to support a First Production Unit (FPU) delivery in 2008. The W-80 LEP program has been archived.

Cruise Missile Functional Ground Testing (FGT) is required to provide the capability to non-destructively accomplish functional flight simulation of a full-up missile flight profile on the ground to obtain additional reliability data. This capability will provide critical reliability data without the costs of flight test missions and will also retain the missiles in the inventory. This effort will develop the software and hardware for an existing test facility for accomplishment of the ground tests.

Joint Test Assembly (JTA-1) Replacement Support: The W80-1 JTA (warhead flight test configuration) is becoming unsupportable with sunset technology. Update of this JTA was to be addressed within the W80 Life Extension Program (LEP). With the cancellation of the W80 LEP, the JTA replacement still needs to be accomplished, which will be led by NNSA. Air Force support is required to evaluate the interface changes, revise the W80-1 Interface Control Documents (ICDs), provide integration support, and flight test qualification.

Aging and surveillance program for ALCM critical components such as those in the safe arm and fuze subsystem, navigation/guidance system, and electrical/power distribution system. This is needed to identify aging trends prior to failures in fielded components that would result in fleet-wide reliability and supportability problems.

These programs are in Budget Activity 7, Operational System Development, due to efforts supporting a fielded, post Milestone III operational weapon system.

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0101122F AIR LAUNCHED CRUISE MISSILE</b>	<b>PROJECT NUMBER AND TITLE</b> <b>4797 Flight Testing &amp; Navigation Enhancement</b>
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<b>(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Functional Ground Test (FGT)		0.003	0.015
(U) W80 Joint Test Assembly (JTA-1) Replacement Support, revise the W80-1 Interface Control Documents (ICDs), provide integration support, and flight test qualification. Continuation of W80 efforts - not a New Start.	2.114	0.010	0.082
(U) Develop aging and surveillance program for ALCM critical components such as those in the safe arm and fuze subsystem, navigation/guidance system, and electrical/power distribution system to identify aging trends prior to failures in fielded components.	2.400	0.382	0.255
(U) In FY10, start Analysis of Alternatives (AOA) for future long range stand-off vehicle.			3.300
(U) Total Cost	4.514	0.395	3.652

<b>(U) <u>C. Other Program Funding Summary (\$ in Millions)</u></b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to Complete</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>		
(U) MPAF, Missile Modifications (BA 03, PE 0101122F, P-15)	10.043	10.120	0.000	0.000	0.000	0.000	0.000	0.000		20.163
(U) MPAF, Missile Modifications Initial Spares (BA 04 PE 0101122F, P-16 )	0.191	0.193	0.000	0.000	0.000	0.000	0.000	0.000		0.384
(U) MPAF, Replenishment Spares (BA 04, PE 0101122F, P-16)	0.295	0.299	10.906						Continuing	TBD
(U) OPAF, Electronics and Telecommunications Equipment (BP83) (BA 03, PE 0101122F, P-18)	1.461	1.495	1.540						Continuing	TBD

**(U) D. Acquisition Strategy**  
 The ALCM/W-80 LEP integration is being performed by the prime contractor utilizing a Time and Materials (T&M) engineering assignment on an existing sustainment contract.

The ALCM JTA-1 Replacement Support will be performed utilizing a Firm Fixed Price (FFP) contract.

The ALCM Aging and Surveillance Program will be developed by the prime contractor utilizing a Time and Materials (T&M) engineering assignment.

UNCLASSIFIED

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>07 Operational System Development</b>				<b>0101122F AIR LAUNCHED CRUISE MISSILE</b>					<b>4797 Flight Testing &amp; Navigation Enhancement</b>			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>											0.000	
W80 LEP Support	Eng	Boeing,									0.000	TBD
JTA-1 Replacement Support	Asgn/T&M FFP	Seattle, WA. ESpectrum, San Antonio, TX	2.102	2.000		0.010	Jun-09	0.082	Feb-10		4.194	
Subtotal Product Development			2.102	2.000		0.010		0.082		0.000	4.194	TBD
Remarks:												
(U) <u>Support</u>											0.000	TBD
W80 Support/PSM											0.000	TBD
ALCM Aging and Surveillance Program			2.540	2.514		0.382	Jun-09	0.255	Jun-10		5.691	
Subtotal Support			2.540	2.514		0.382		0.255		0.000	5.691	TBD
Remarks:												
(U) <u>Test &amp; Evaluation</u>											0.000	TBD
49th Test Wing (W-80 LEP)	MIPR										0.000	TBD
None											0.000	
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	TBD
Remarks:												
(U) <u>Functional Ground Test</u>											0.000	TBD
Subtotal Functional Ground Test			0.000	0.000		0.003	May-09	0.015	May-09		0.018	TBD
Remarks:						0.003		0.015		0.000	0.018	TBD
(U) <u>Cruise Missile AoA</u>											0.000	TBD
Subtotal Cruise Missile AoA			0.000	0.000		0.000		3.300		0.000	3.300	TBD
Remarks:								3.300			3.300	TBD
(U) Total Cost			4.642	4.514		0.395		3.652		0.000	13.203	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0101122F AIR LAUNCHED CRUISE  
MISSILE

PROJECT NUMBER AND TITLE  
4797 Flight Testing & Navigation  
Enhancement

ALCM Schedule

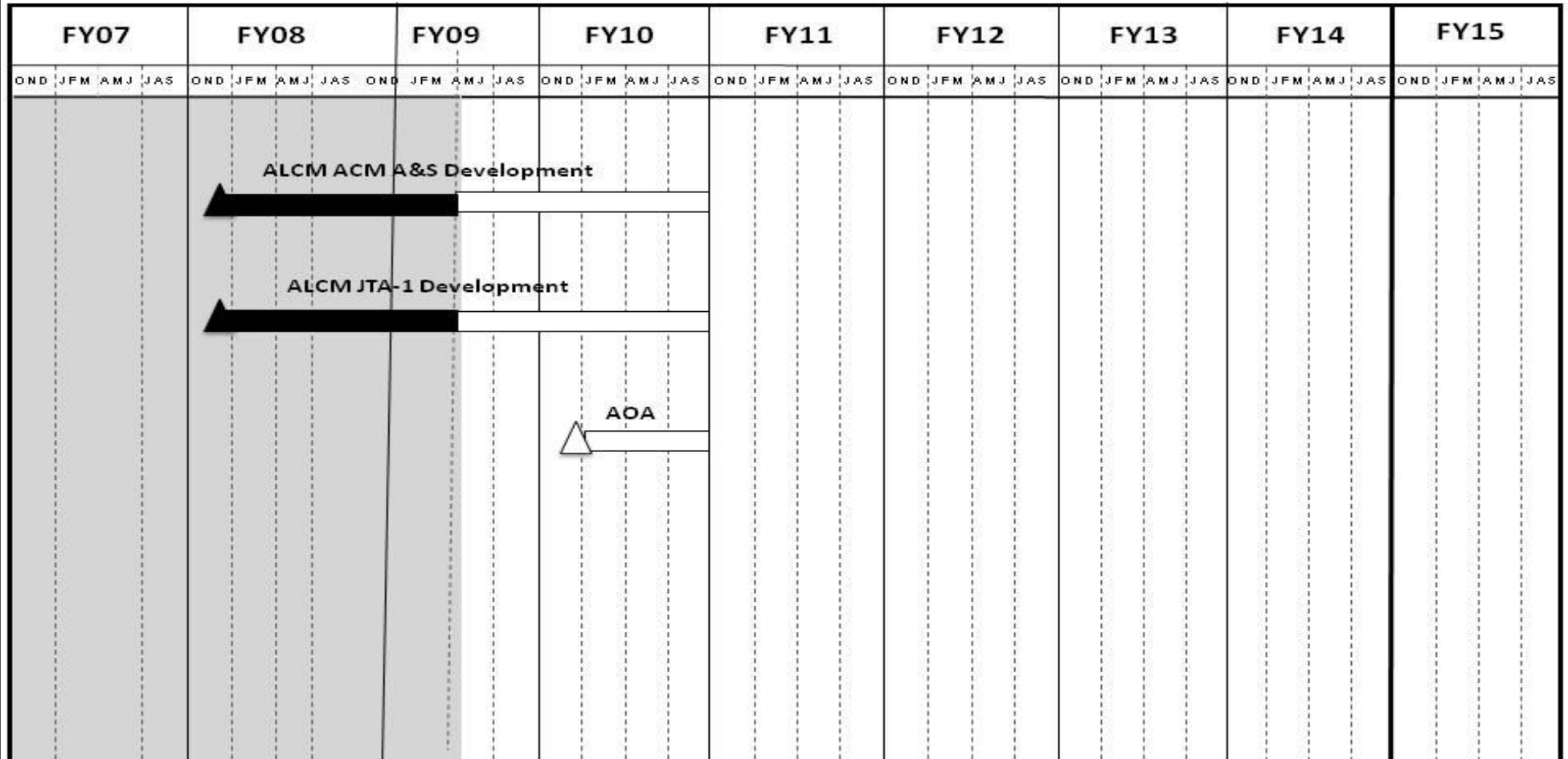




Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0101122F AIR LAUNCHED CRUISE MISSILE</b>	PROJECT NUMBER AND TITLE <b>4797 Flight Testing &amp; Navigation Enhancement</b>
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(U) <u>Schedule Profile</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) ALCM JTA-1 Support	2-4Q	1-4Q	1-4Q
(U) Cruise Missile AoA			2-4Q
(U) ALCM Aging & Surveillance Program Development	2-4Q	1-4Q	1-4Q

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PE NUMBER: 0101126F  
 PE TITLE: B-1B SQUADRONS

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>May 2009</b>
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BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0101126F B-1B SQUADRONS</b>
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.000	0.000	148.025	0.000	0.000	0.000	0.000	0.000	0.000	0.000
5344 B-1B Modernization	0.000	0.000	148.025	0.000	0.000	0.000	0.000	0.000	0.000	0.000

FY10, B-1B development efforts are transferring from PE 0604226F, Budget Program Activity Code (BPAC) 654596 to B-1B Squadrons, PE 0101126F, BPAC 675344. This transfers funds / efforts from Budget Activity (BA) 5 Demonstration / Validation to BA 7 Operations Systems Development.

**(U) A. Mission Description and Budget Item Justification**

This program provides RDT&E funding for the B-1B Modernization program. The Modernization program provides new and improved capabilities to the B-1B weapon system that require significant hardware and software development and testing. In addition, the Modernization program addresses reliability and diminishing manufacturing sources (DMS) deficiencies to prevent future grounding of aircraft.

B-1B grounding items are addressed in the following efforts: Central Integrated Test System (CITS) upgrade, Radar Modernization Improvement Program (RMIP), Vertical Situational Display (VSD) upgrade, and Inertial Navigation System (INS) upgrade.

B-1B improvement efforts include, but are not limited to, the development of the Fully Integrated Data Link (FIDL) and ALQ-161A Preprocessor Avionics Control Unit (PACU) software re-host/development.

FIDL integrates Link-16 and Beyond Line of Sight (BLOS) data links along with upgraded displays for improved connectivity to command and control authorities and for enhancements to targeting and weapons management. Upgrades to the B-1B training systems are included in the Modernization program to keep the training systems current with the aircraft configuration. In addition, program funds cover engineering/planning studies, related engineering efforts, and initiatives for future weapon system enhancements, including efforts to improve weapon system operational capabilities, safety, supportability, maintainability, reliability, and total ownership cost.

All B-1B development programs support planned requirements for unique identification in their production phases. The B-1B Modernization upgrade program is included in Budget Activity (BA) 7, Operational System Development.

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0101126F B-1B SQUADRONS

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	0.000	0.000	139.649
(U) Current PBR/President's Budget	0.000	0.000	148.025
(U) Total Adjustments	0.000	0.000	
(U) Congressional Program Reductions			
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer			

(U) **Significant Program Changes:**

FY10 funding adjusted to reflect \$35M re-color 3010 to 3600 funding, and reflects continuing modernization efforts on Vertical Situational Display (VSD) Upgrade and Radar Modernization Improvement Program (RMIP).

FY10/FY11, B-1B development efforts are transferring from PE 0604226F, Budget Program Activity Code (BPAC) 654596 to B-1B Squadrons, PE 0101126F, BPAC 675344. This transfers funds / efforts from Budget Activity (BA) 5 Demonstration / Validation to BA 7 Operations Systems Development.

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>					PE NUMBER AND TITLE <b>0101126F B-1B SQUADRONS</b>			PROJECT NUMBER AND TITLE <b>5344 B-1B Modernization</b>		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5344 B-1B Modernization	0.000	0.000	148.025	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

This program provides RDT&E funding for the B-1B Modernization program. The Modernization program provides new and improved capabilities to the B-1B weapon system that require significant hardware and software development and testing. In addition, the Modernization program addresses reliability and diminishing manufacturing sources (DMS) deficiencies to prevent future grounding of aircraft.

B-1B grounding items are addressed in the following efforts: Central Integrated Test System (CITS) upgrade, Radar Modernization Improvement Program (RMIP), Vertical Situational Display (VSD) upgrade, and Inertial Navigation System (INS) upgrade.

B-1B improvement efforts include, but are not limited to, the development of the Fully Integrated Data Link (FIDL) and ALQ-161A Preprocessor Avionics Control Unit (PACU) software re-host/development.

FIDL integrates Link-16 and Beyond Line of Sight (BLOS) data links along with upgraded displays for improved connectivity to command and control authorities and for enhancements to targeting and weapons management. Upgrades to the B-1B training systems are included in the Modernization program to keep the training systems current with the aircraft configuration. In addition, program funds cover engineering/planning studies, related engineering efforts, and initiatives for future weapon system enhancements, including efforts to improve weapon system operational capabilities, safety, supportability, maintainability, reliability, and total ownership cost.

All B-1B development programs support planned requirements for unique identification in their production phases. The B-1B Modernization upgrade program is included in Budget Activity (BA) 7, Operational System Development.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Continued B-1B Modernization contractual efforts			139.649
(U) Government Flight Test, Live Fire Test & Evaluation and General Test Support			2.928
(U) Continuing Mission Support			5.148
(U) Modeling & Simulation / Studies & Analyses			0.300
(U) Total Cost	0.000	0.000	148.025

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Appn 10, Multiple PEs, Aircraft Procurement BP11,	0.000	0.000	107.165							107.165

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0101126F B-1B SQUADRONS</b>	<b>PROJECT NUMBER AND TITLE</b> <b>5344 B-1B Modernization</b>
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**(U) C. Other Program Funding Summary (\$ in Millions)**

Mods									
(U) Appn 10, PE 0101126F, B-1B, Aircraft Procurement BP16, Initial Spares	0.000	0.000	9.915						9.915
(U) Appn 10, PE 0101126F, B-1B, Aircraft Procurement BP12, Common Support Equipment	0.000	0.000	2.672						2.672
(U) Appn 10, PE 0101126F, B-1B, Aircraft Procurement BP13, Post Production Charges	0.000	0.000	3.929						3.929

Related RDT&E:

- (U) Program Element 0205164F, Global Positioning System
- (U) Program Element 0207325F, Joint Air to Surface Standoff Missile (JASSM)
- (U) Program Element 0208006F, Air Force Mission Planning Systems (AFMPS), Joint Mission Planning System (JMPS)

**(U) D. Acquisition Strategy**

(U) Key elements of the overall B-1B Modernization acquisition strategy include: use of a sole source contract with a prime/integrating contractor (Boeing); installed performance responsibility; use of cost plus incentive fee (CPIF) development contracts; and combining developmental upgrades with software sustainment blocks to minimize the number of software releases, aircraft downtime and differences in fielded configurations.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE				
<b>07 Operational System Development</b>				<b>0101126F B-1B SQUADRONS</b>				<b>5344 B-1B Modernization</b>				
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
Central Integrated Test System (CITS) Upgrade	SS/CPIF	Boeing, Long Beach, CA						3.670	Dec-09	Continuing	TBD	
Vertical Situation Display (VSD) Upgrade	SS/CPIF	Boeing, Long Beach, CA						15.050	Oct-09	Continuing	TBD	
Radar Modernization Improvement Program (RMIP)	SS/CPIF	Boeing, Long Beach, CA						40.438	Oct-09	Continuing	TBD	
Inertial Navigation System (INS)	SS/CPIF	Boeing, Long Beach, CA						40.008	Dec-09	Continuing	TBD	
Fully Integrated Data Link (FIDL)	SS/CPIF	Boeing, Long Beach, CA						35.000	Oct-09	Continuing	TBD	
ALQ-161A Preprocessor Avionics Control Unit (PACU)	SS/CPFF	561st, Robins AFB, GA						7.483	Nov-09	Continuing	TBD	
Mode S/5	SS/CPIF	Boeing, Long Beach, CA									0.000	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal Product Development			0.000	0.000		0.000		141.649		Continuing	TBD	0.000
Remarks:												
(U) <u>Support</u>												
A&AS								3.148			3.148	
Studies & Analyses / Modeling & Simulation								0.300			0.300	
Subtotal Support			0.000	0.000		0.000		3.448		0.000	3.448	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
AFFTC								2.928			2.928	
Subtotal Test & Evaluation			0.000	0.000		0.000		2.928		0.000	2.928	0.000
Remarks:												
(U) <u>Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			0.000	0.000		0.000		148.025		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

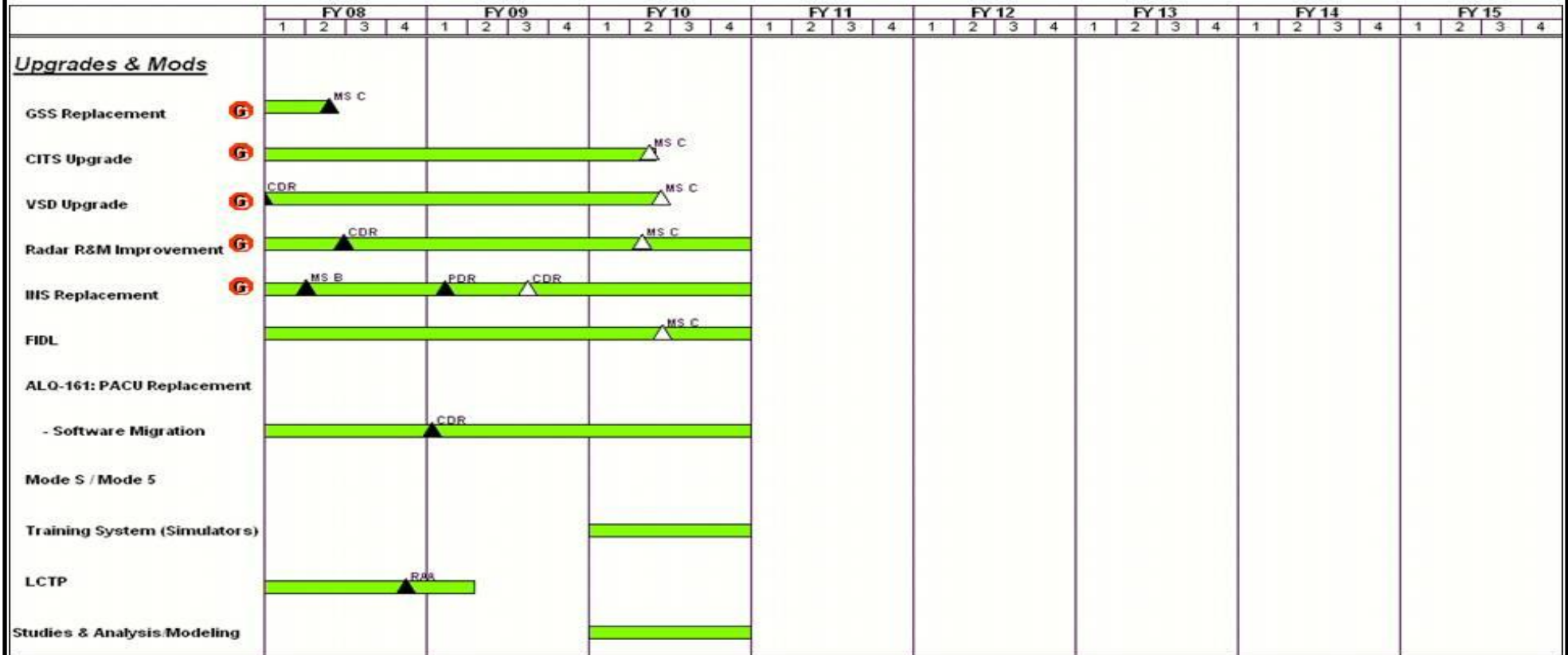
May 2009

BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0101126F B-1B SQUADRONS

PROJECT NUMBER AND TITLE  
5344 B-1B Modernization

# Development Activity



CA - Contract Award  
 MS - Milestone  
 PDR - Preliminary Design Review  
 CDR - Critical Design Review  
 FRP DR - Full Rate Production Decision Review  
 HW - Hardware  
 LCTP - Laptop Controlled Targeting Pod  
 RAA - Required Assets Available  
 UNR - Urgent Need Request

△ Forecast Activity  
 ▲ Completed  
 RDT&E Funding  
 Grounding Item

20 Apr 09

R-1 Line Item No. 119

Page-6 of 7

Exhibit R-4 (PE 0101126F)



**UNCLASSIFIED**

**Exhibit R-4a, RDT&E Schedule Detail**

DATE

**May 2009**

<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0101126F B-1B SQUADRONS</b>	<b>PROJECT NUMBER AND TITLE</b> <b>5344 B-1B Modernization</b>
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<b>(U) <u>Schedule Profile</u></b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Gyro Stabilization System (GSS) - MS C	2Q		
(U) Central Integrated Test System (CITS) Upgrade - MS C			2Q
(U) Vertical Situation Display (VSD) Upgrade - MS C			2Q
(U) Radar Modernization Improvement Program (RMIP) - MS C			2Q
(U) Radar Modernization Improvement Program (RMIP) - FRP DR			2Q
(U) Inertial Navigation System (INS) - CDR		3Q	
(U) Fully Integrated Data Link (FIDL) - MS C			1Q

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0101127F B-2 SQUADRONS</b>
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.000	0.000	415.414	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5345 B-2 Modernization	0.000	0.000	415.414	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

(U) **A. Mission Description and Budget Item Justification**

The B-2A Spirit is the world's most advanced long-range strike asset. The unique combination of range, precision payload and stealth (anti-access for both nuclear and conventional missions) characteristics allow the B-2 to target and destroy the highest value enemy targets, regardless of location, return home safely, and permit freedom of movement for follow-on forces such as F-22, F-35, and other Long Range Strike platforms. The array of planned RDT&E projects are necessary to both preserve this strategic advantage as well as increase the flexibility, lethality, and survivability of this national asset tasked across a broad spectrum, from tactical to national objectives. The Radar Modernization (RMP) and Aft Deck Programs address potential fleet grounding issues.

Avionics upgrades include, but are not limited to, RMP, Link-16 Center Instrument Display (CID)/In-Flight Replanner (IFR), Ultra High Frequency (UHF) Satellite Communication (SATCOM), Extremely High Frequency (EHF) SATCOM and Computers, Mode 5/S Identification Friend or Foe (IFF), Defensive Management System (DMS), Integrated Display Systems (IDS) and advanced, low detection data links upgrades. RMP changes the operating frequency of the radar to enable the B-2 to operate as the primary user worldwide in the future. Link-16 CID/IFR upgrade allows the B-2 access to theater tactical data links, improving on-board situational awareness while greatly enhancing the ability of the theater commanders to coordinate the B-2 with other assets. UHF SATCOM provides beyond line of sight secure communications to aircrews enabling verbal and data updates to missions. EHF SATCOM and Computers provides a secure, survivable communication and Net Ready infrastructure systems upgrade, preserving the critical ability to guarantee communication in a nuclear environment, as well as a basis for surveillance and reconnaissance. EHF SATCOM and Computers will provide a dramatic increase in the B-2 processing capability, paving the way for greater bandwidth and integration into the Global Information Grid (GIG), and Airborne Network Attack in an anti-access environment. Upgrades include extremely high frequency components and the computer infrastructure upgrades, such as but not limited to, flight management processors and onboard network components necessary to host new capability on the aircraft. Mode 5 provides enhanced combat identification of friend or foe functions for military Air Traffic Management; Mode S provides enhanced surveillance functions with commercial Air Traffic Management to allow operations in controlled air space. Integrated Display systems, radar, and Defensive Management System upgrades improve system performance, increase reliability and supportability, and counters grounding and hardware obsolescence. These system upgrades will transition from the current analog design to modern digital technology providing enhanced threat location, identification, and warning capability for improved survivability, and enabling increased flexibility in strike, moving target kill, and non-traditional surveillance/reconnaissance (SR), positioning the B-2 for increased combat lethality, becoming the world's premier anti-access moving target kill platform. Integrated Display Systems upgrade will provide processors, fiber optics, Ethernet, and associated architecture required to support advanced weapon system capabilities. The full display system upgrade includes Multi-function Display Units (MDU), discrete collector units, switching units, and the necessary wiring modifications to support the B-2 mission, precluding potential FY12 non-mission capable events. The DMS upgrade includes improvements and counters obsolescence of the defensive management processors and threat emitter system. Defensive Management System upgrades and improved displays are essential to reducing non-mission capable events, meeting Aircraft Availability Improvement Program (AAIP) goals in this aging aircraft. New Triad (electro-magnetic pulse (EMP) hardening) requirements will test individual component and the

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

May 2009

BUDGET ACTIVITY

**07 Operational System Development**

PE NUMBER AND TITLE

**0101127F B-2 SQUADRONS**

entire B-2 fleet at higher EMP levels for NC2 Survivability. Finally, advanced data links will permit B-2 to communicate with other stealth platforms in an anti-access environment to enhance situational awareness and to permit time-critical targeting and engagement.

Armament upgrades include, but are not limited to, integration of new and/or advanced weapons on the B-2 to destroy a wider array of target sets, to include moving target sets and Hardened, Deeply Buried Targets (HDBT), as well as destroy more targets per sortie. Integration of the 30K lb class Massive Ordnance Penetrator (MOP) will provide the nation with the ability to hold additional HDBT targets at risk that are currently unachievable with 5K lb class penetrator munitions. The initial MOP Quick Reaction Capability (QRC) effort will be expanded to include a fully developed Launch Acceptability Region (LAR), single Smart Bomb Rack Controller (SBRC) per bay weapon control and monitor, and mixed carriage capability with Smart Bomb Rack Assemblies (SBRA). The B-2 is the only anti-access penetrating platform capable of carrying the MOP. The Moving Target Kill (MTK) effort will leverage a high precision munition such as the Small Diameter Bomb II (SDM II) as the mobile target kill munition forming the foundation to exploit the modularity and improved precision algorithms of Universal Armament Interface as well as high-resolution, streaming video for visual identification and precision targeting, both in the cockpit and via airborne networking. The MOP and MTK projects will design, develop, integrate, and test hardware and software required for carriage, jettison, and release of both weapons from the B-2. Finally, basic armament improvements include, but are not limited to, stores management hardware and software modernization and improvements to enable a simultaneous configuration of the Rotary Launcher Assemblies (RLA) and the Smart Bomb Rack Assemblies (SBRA), thus affording maximum strike flexibility.

Structures improvements include, but are not limited to, Aft Deck upgrade which addresses an interim and long term solution to persistent cracking of aft deck surfaces while preserving the key stealth characteristics that are vital to the survivability of the B-2; windshield redesign provides improved components and windshield manufacturing processes to remedy windshield cracking and electrical conductivity limitations; Proximity Sensor Logic Unit (PSLU) replacement counters obsolescence issues with electronic components, improving safety of maintainers working around various aircraft bay doors.

Engine improvements include, but are not limited to, the F-118 engine service life extension program. Stage 1 and 3 engine fan blade improvements will reduce engine changes, increasing aircraft availability. Engine upgrades are necessary to maintain commonality with the F110 engine core.

Low Observable (LO) programs include, but are not limited to, improvements to door edge treatments, tile protection system, Magnetic Radar Absorbing Material (MAGRAM) picture framing and other LO materials development, hot structures, tailpipe material improvements, nozzle bay doors, windshield low observable treatments, advanced topcoat system, radar frequency diagnostics and other LO diagnostic tools development such as improvements of the Signature Diagnostic System database, Low Observable Combat Readiness Model, and other low observable information systems. These upgrades decrease maintenance manhours and increase aircraft availability while improving/maintaining LO signature of the B-2 fleet.

Baseline support provides support of the B-2 flight test aircraft, maintains B-2 unique flight test infrastructure, ensures the B-2 training systems keep pace with aircraft system updates and counters obsolescence issues, ensures the Mission Planning System keeps pace with aircraft modifications and mission planning system updates, provides for other B-2 unique government costs, and also includes acquisition planning activities for future capabilities such as, but not limited to, Stores Management Processor/Infrastructure upgrades, Advanced Tactical Datalink capabilities, Port Transducer Upgrade, mixed weapon load-outs, Universal Armament Interface, and Global Positioning System (GPS) M-code receivers.

This program is included in budget activity code 07, Operational System Development.

Exhibit R-2, RDT&E Budget Item Justification

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0101127F B-2 SQUADRONS

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	0.000	0.000	0.000
(U) Current PBR/President's Budget	0.000	0.000	415.414
(U) Total Adjustments	0.000	0.000	
(U) Congressional Program Reductions			
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer			

(U) **Significant Program Changes:**

Changes to the FY10 budget are due to the of radar modernization program (RMP) nearing completion of development as it transitions to production, the re-alignment and ramp up of newer efforts (primarily EHF SATCOM and Computer), and the addition of funds for New Triad (EMP hardening testing) effort. FY09 and prior fiscal years are funded from PE 0604240F.

## Exhibit R-2a, RDT&amp;E Project Justification

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BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE		
<b>07 Operational System Development</b>				<b>0101127F B-2 SQUADRONS</b>				<b>5345 B-2 Modernization</b>		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5345 B-2 Modernization	0.000	0.000	415.414	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) **A. Mission Description and Budget Item Justification**

The B-2A Spirit is the world's most advanced long-range strike asset. The unique combination of range, precision payload and stealth (anti-access for both nuclear and conventional missions) characteristics allow the B-2 to target and destroy the highest value enemy targets, regardless of location, return home safely, and permit freedom of movement for follow-on forces such as F-22, F-35, and other Long Range Strike platforms. The array of planned RDT&E projects are necessary to both preserve this strategic advantage as well as increase the flexibility, lethality, and survivability of this national asset tasked across a broad spectrum, from tactical to national objectives. The Radar Modernization (RMP) and Aft Deck Programs address potential fleet grounding issues.

Avionics upgrades include, but are not limited to, RMP, Link-16 Center Instrument Display (CID)/In-Flight Replanner (IFR), Ultra High Frequency (UHF) Satellite Communication (SATCOM), Extremely High Frequency (EHF) SATCOM and Computers, Mode 5/S Identification Friend or Foe (IFF), Defensive Management System (DMS), Integrated Display Systems (IDS) and advanced, low detection data links upgrades. RMP changes the operating frequency of the radar to enable the B-2 to operate as the primary user worldwide in the future. Link-16 CID/IFR upgrade allows the B-2 access to theater tactical data links, improving on-board situational awareness while greatly enhancing the ability of the theater commanders to coordinate the B-2 with other assets. UHF SATCOM provides beyond line of sight secure communications to aircrews enabling verbal and data updates to missions. EHF SATCOM and Computers provides a secure, survivable communication and Net Ready infrastructure systems upgrade, preserving the critical ability to guarantee communication in a nuclear environment, as well as a basis for surveillance and reconnaissance. EHF SATCOM and Computers will provide a dramatic increase in the B-2 processing capability, paving the way for greater bandwidth and integration into the Global Information Grid (GIG), and Airborne Network Attack in an anti-access environment. Upgrades include extremely high frequency components and the computer infrastructure upgrades, such as but not limited to, flight management processors and onboard network components necessary to host new capability on the aircraft. Mode 5 provides enhanced combat identification of friend or foe functions for military Air Traffic Management; Mode S provides enhanced surveillance functions with commercial Air Traffic Management to allow operations in controlled air space. Integrated Display systems, radar, and Defensive Management System upgrades improve system performance, increase reliability and supportability, and counters grounding and hardware obsolescence. These system upgrades will transition from the current analog design to modern digital technology providing enhanced threat location, identification, and warning capability for improved survivability, and enabling increased flexibility in strike, moving target kill, and non-traditional surveillance/reconnaissance (SR), positioning the B-2 for increased combat lethality, becoming the world's premier anti-access moving target kill platform. Integrated Display Systems upgrade will provide processors, fiber optics, Ethernet, and associated architecture required to support advanced weapon system capabilities. The full display system upgrade includes Multi-function Display Units (MDU), discrete collector units, switching units, and the necessary wiring modifications to support the B-2 mission, precluding potential FY12 non-mission capable events. The DMS upgrade includes improvements and counters obsolescence of the defensive management processors and threat emitter system. Defensive Management System upgrades and improved displays are essential to reducing non-mission capable events, meeting Aircraft Availability Improvement Program (AAIP) goals in this aging aircraft. New Triad (electro-magnetic pulse (EMP) hardening) requirements will test individual component and the entire B-2 fleet at higher EMP levels for NC2 Survivability. Finally, advanced data links will permit B-2 to communicate with other stealth platforms in an anti-access environment to enhance situational awareness and to permit time-critical targeting and engagement.

R-1 Line Item No. 120

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Project 5345

Exhibit R-2a (PE 0101127F)

## Exhibit R-2a, RDT&amp;E Project Justification

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BUDGET ACTIVITY

**07 Operational System Development**

PE NUMBER AND TITLE

**0101127F B-2 SQUADRONS**

PROJECT NUMBER AND TITLE

**5345 B-2 Modernization**

Armament upgrades include, but are not limited to, integration of new and/or advanced weapons on the B-2 to destroy a wider array of target sets, to include moving target sets and Hardened, Deeply Buried Targets (HDBT), as well as destroy more targets per sortie. Integration of the 30K lb class Massive Ordnance Penetrator (MOP) will provide the nation with the ability to hold additional HDBT targets at risk that are currently unachievable with 5K lb class penetrator munitions. The initial MOP Quick Reaction Capability (QRC) effort will be expanded to include a fully developed Launch Acceptability Region (LAR), single Smart Bomb Rack Controller (SBRC) per bay weapon control and monitor, and mixed carriage capability with Smart Bomb Rack Assemblies (SBRA). The B-2 is the only anti-access penetrating platform capable of carrying the MOP. The Moving Target Kill (MTK) effort will leverage a high precision munition such as the Small Diameter Bomb II (SDM II) as the mobile target kill munition forming the foundation to exploit the modularity and improved precision algorithms of Universal Armament Interface as well as high-resolution, streaming video for visual identification and precision targeting, both in the cockpit and via airborne networking. The MOP and MTK projects will design, develop, integrate, and test hardware and software required for carriage, jettison, and release of both weapons from the B-2. Finally, basic armament improvements include, but are not limited to, stores management hardware and software modernization and improvements to enable a simultaneous configuration of the Rotary Launcher Assemblies (RLA) and the Smart Bomb Rack Assemblies (SBRA), thus affording maximum strike flexibility.

Structures improvements include, but are not limited to, Aft Deck upgrade which addresses an interim and long term solution to persistent cracking of aft deck surfaces while preserving the key stealth characteristics that are vital to the survivability of the B-2; windshield redesign provides improved components and windshield manufacturing processes to remedy windshield cracking and electrical conductivity limitations; Proximity Sensor Logic Unit (PSLU) replacement counters obsolescence issues with electronic components, improving safety of maintainers working around various aircraft bay doors.

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Baseline support provides support of the B-2 flight test aircraft, maintains B-2 unique flight test infrastructure, ensures the B-2 training systems keep pace with aircraft system updates and counters obsolescence issues, ensures the Mission Planning System keeps pace with aircraft modifications and mission planning system updates, provides for other B-2 unique government costs, and also includes acquisition planning activities for future capabilities such as, but not limited to, Stores Management Processor/Infrastructure upgrades, Advanced Tactical Datalink capabilities, Port Transducer Upgrade, mixed weapon load-outs, Universal Armament Interface, and Global Positioning System (GPS) M-code receivers.

This program is included in budget activity code 07, Operational System Development.

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<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>May 2009</b>
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BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0101127F B-2 SQUADRONS</b>	PROJECT NUMBER AND TITLE <b>5345 B-2 Modernization</b>
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<b>(U) B. Accomplishments/Planned Program (\$ in Millions)</b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Continue B-2 baseline support to include developmental flight test aircraft modification and base of operations; Mission Planning, Trainer support, long range planning, studies, program integration activities, acquisition planning, and other government costs.			13.192
(U) Continue development of Aft Deck, Low Observable improvements, Mode 5/S IFF, Proximity Sensor Logic Unit (PSLU), Moving Target Kill (MTK), Massive Ordnance Penetrator (MOP), Display Systems, Defensive Management System (DMS), Integrated Windshield Solution, Trainer Upgrades, and other airframe and avionics improvements.			62.566
(U) Begin development of New Triad effort improving B-2 EMP hardening.			8.110
(U) Continue development of EHF SATCOM and Computers to include Increment 1 Component Advanced Design (CAD), Increment 1 System Development and Demonstration (SDD) and design and fabrication of new and modified components for two test aircraft and two Force Development Evaluation (FDE) aircraft, and Increment 2 CAD and SDD			281.163
(U) Continue development of Radar Modernization Program including continuing System Development and Demonstration (SDD) and design and fabrication of new and modified components for test aircraft and six developmental units.			50.383
(U) Total Cost	0.000	0.000	415.414

<b>(U) C. Other Program Funding Summary (\$ in Millions)</b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to Complete</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	<u>Total Cost</u>
(U) A/C Proc, AF, Modifications/BA05/B-2A			283.955						Continuing	TBD
(U) A/C Prod, AF, Post Prod Support/BA07/B-2A/ICS (XX50)			24.481						Continuing	TBD
(U) A/C Proc, AF, Post Prod Support/BA07/B-2A			0.000						Continuing	TBD
(U) A/C Proc, AF, A/C Initial Spares/BA06/B-2A			0.000						Continuing	TBD
(U) A/C Proc, AF, Depot Activation/BA07/B-2A			19.214						Continuing	TBD



## Exhibit R-2a, RDT&amp;E Project Justification

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0101127F B-2 SQUADRONS

PROJECT NUMBER AND TITLE

5345 B-2 Modernization

(U) **D. Acquisition Strategy**

Key elements of the overall acquisition strategy include: use of sole source contract with a prime/integrating contractor (Northrop Grumman); use of cost plus award fee (CPAF) development contracts; and the combination of developmental upgrades with software sustainment blocks to minimize the number of software releases, aircraft downtime, and differences in fielded configurations.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>07 Operational System Development</b>				<b>0101127F B-2 SQUADRONS</b>					<b>5345 B-2 Modernization</b>			
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
Air Vehicle	Multiple	Various						397.549	Oct-09	Continuing	TBD	
Aircrew Training	Multiple	Various						1.955	Jan-10	Continuing	TBD	
Mission Planning	Multiple	Various						1.930	Jan-10	Continuing	TBD	
Engines	Multiple	Various						0.000			0.000	
Subtotal Product Development			0.000	0.000		0.000		401.434		Continuing	TBD	0.000
Remarks:												
(U) <u>Support</u>												
Other Government Costs	N/A	Various						9.246	Oct-09	Continuing	TBD	
Subtotal Support			0.000	0.000		0.000		9.246		Continuing	TBD	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
Government Test	N/A	AFFTC						4.734	Oct-09	Continuing	TBD	
Subtotal Test & Evaluation			0.000	0.000		0.000		4.734		Continuing	TBD	0.000
Remarks:												
(U) <u>Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			0.000	0.000		0.000		415.414		Continuing	TBD	0.000
Award dates listed are the first incremental funding opportunity associated with each cost category.												

Exhibit R-4, RDT&E Schedule Profile

DATE  
May 2009

BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0101127F B-2 SQUADRONS

PROJECT NUMBER AND TITLE  
5345 B-2 Modernization



U.S. AIR FORCE

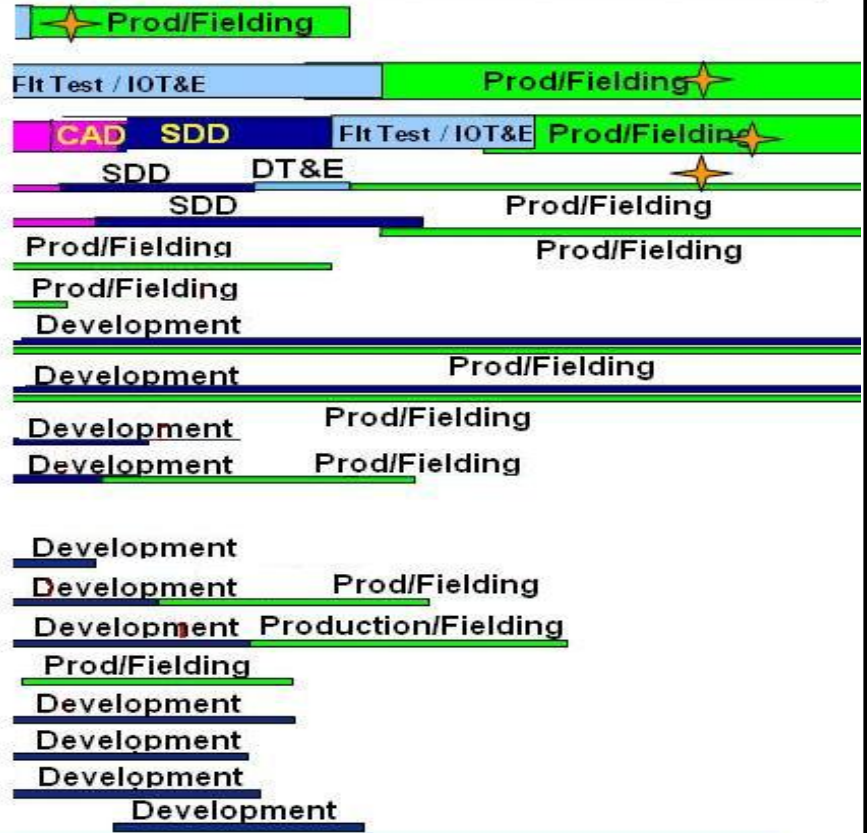
# B-2 Detailed Schedule

AIRCRAFT MODS

FY07	FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY15
------	------	------	------	------	------	------	------	------

- RADAR FREQUENCY MOD IFC P5
- EHF SATCOM And Computer Upgrade Inc 1 IFC P6
- EHF Incr 2 IFC P8
- IFF Mode 5/S IFC P7

- Aft Deck
- Alternate High Freq Material
- OGADS
- Trainers Upgrades
- LO Supportability Modifications
- Integrated Windshield Solution
- Proximity Sensor Logic Unit
- Engine Fan Blade Safety Modification
- SDB/MTK
- Displays Upgrade
- MOP
- VIPER
- DMS
- Integrated Strike Warfare
- Advanced Tactical Data Link
- New Triad



★ Initial Operational Capability

As of: 30 Nov 08 <sup>1</sup>

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0101127F B-2 SQUADRONS

PROJECT NUMBER AND TITLE  
5345 B-2 Modernization

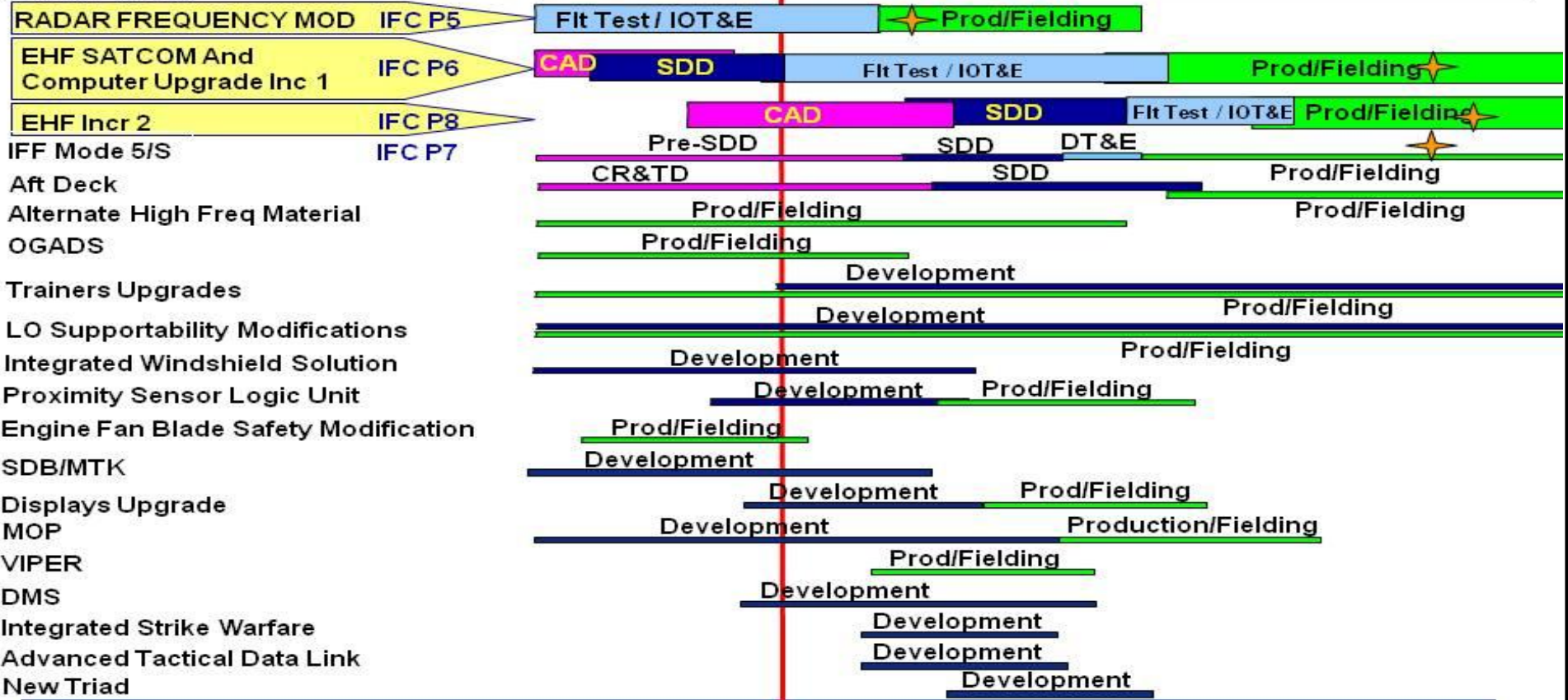


U.S. AIR FORCE

# B-2 Detailed Schedule

AIRCRAFT MODS

FY07	FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY15
------	------	------	------	------	------	------	------	------



★ Initial Operational Capability

As of: 30 Nov 08 <sup>1</sup>

Exhibit R-4a, RDT&E Schedule Detail

DATE

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0101127F B-2 SQUADRONS

PROJECT NUMBER AND TITLE

5345 B-2 Modernization

(U) Schedule Profile

FY 2008

FY 2009

FY 2010

(U) Aft Deck Milestone B

1Q

(U) Aft Deck SDD Contract Award

2Q

(U) Mode S/5 IFF MS B Decision

3Q

(U) Mode S/5 IFF SDD Contract Award

3Q

(U) New Triad Contract Award

2Q

FY08 - FY09 efforts are addressed in PE 0604240F

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PE NUMBER: 0101313F  
 PE TITLE: STRAT WAR PLANNING SYS - USSTRATCOM

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0101313F STRAT WAR PLANNING SYS - USSTRATCOM</b>
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	25.159	17.505	33.836	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5059 Strategic War Planning System (SWPS)	18.429	10.271	10.429	0.000	0.000	0.000	0.000	0.000	0.000	TBD
5282 Joint Navigation Warfare Center (JNWC)	6.730	7.234	8.267	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5368 GSIN (Global Sensor Integrated Network)	0.000	0.000	15.140	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

FY2008 funding for project 5059 includes \$7.095M of Supplemental funding for a classified USSTRATCOM effort. In FY2010 Project 5368, Global Sensor Integrated Network (GSIN) transferred from PE 0105921F, Service Support to STRATCOM Space Activities, in order to better align effort and appropriation.

**(U) A. Mission Description and Budget Item Justification**

The mission of USSTRATCOM is to establish and provide full-spectrum global strike, coordinated space and information operations capabilities to meet both deterrent and decisive national security objectives, and to provide operational space support, integrated missile defense, Global Command Control Communications and Computers Intelligence Surveillance and Reconnaissance (C4ISR), and specialized planning expertise to the joint warfighter. This mission has been defined by the 2002 Unified Command Plan (UCP) changes 1 and 2. To enable completion of these missions, USSTRATCOM is modernizing the Integrated Strategic Planning and Analysis Network (ISPAN) (formerly known as SWPS), developing information systems and techniques to counter and conduct Navigation Warfare (NAVWAR) and establishing a unified national architecture integrating disparate Missile Warning/Missile Defense (MW/MD) systems into a single Internet Protocol (IP)-based system known as the Global Sensor Integrated Network (GSIN) to provide redundant and unambiguous MW/MD data to national leadership.

When the ISPAN modernization is complete the system will support the warfighter in both deliberate and adaptive planning environments while allowing the National Command Authorities to employ the full spectrum of kinetic and non-kinetic weapons. The ISPAN system will continue to evolve as weapon systems are matured, new systems are developed, and the threat changes, particularly in the area of worldwide proliferation of Weapons of Mass Destruction (WMD).

Navigation Warfare (NAVWAR) is a warfighting application of electronic warfare (EW), Information Operations (IO) and space control (SC) employing various techniques and technologies to negate or prevent hostile use of positioning, navigation, and timing (PNT) information and protect unimpeded use of PNT information by U.S., Allied, and Coalition Forces while not unduly disrupting peaceful use outside an area of operation. The Joint Navigation Warfare Center (JNWC) was established to integrate and coordinate NAVWAR PNT capabilities across the mission areas of intelligence, surveillance, reconnaissance, information operations, electronic warfare, and space control. The JNWC is also commissioned to integrate NAVWAR into space operations and assists the warfighter with subject matter expertise to “operationalize” NAVWAR, encouraging the NAVWAR view that the Global Positioning System is a taskable weapons system in addition to being a worldwide PNT service. The JNWC establishes and maintains the Department’s premier basis of NAVWAR expertise, and provides subject matter expertise and knowledge support to warfighters, Department decision makers, the Federal Interagency (the Department of Homeland Security and other civil agencies concerned

Exhibit R-2, RDT&E Budget Item Justification

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0101313F STRAT WAR PLANNING SYS - USSTRATCOM

with the Critical National Infrastructure), and the coalition through testing and evaluation; modeling, simulation and analysis; and exercise and training support.

The Nation's strategic C2, sensors and mission planning programs can not rapidly exchange information across multiple missions, creating ambiguity that delays time critical national C2 decision making processes. GSIN establishes a unified national architecture integrating disparate MW/MD systems into a single IP-based system providing redundant and unambiguous MW/MD data to national leadership. GSIN nets together all sensors, from tactical to strategic, including the Nation's most modern and capable assets - taking advantage of their larger numbers, improved algorithms, mobility and forward deployment to provide earlier cross-cueing and expanded decision space when every second counts. GSIN will permit an IP-based UDOP to augment voice conferencing and rapidly build a single, unambiguous missile event picture allowing real-time senior collaboration for nuclear C2 and improved senior leader situational awareness (SA) and decision-making

SWPS (including ISPAN, JNWC and GSIN development activities) are in budget activity 7, Operational System Development, because their systems are operational, and currently support capabilities to create, verify, and produce OPLAN 8010, meet new UCP taskings, and produce other products.

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	20.130	17.553	19.018
(U) Current PBR/President's Budget	25.159	17.505	33.836
(U) Total Adjustments	5.029	-0.048	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.048	
Congressional Increases	7.095		
Reprogrammings	-1.500		
SBIR/STTR Transfer	-0.566		

(U) **Significant Program Changes:**

- FY08 changes are due to an FY08 Supplemental increase (\$7.095) for a classified USSTRATCOM effort. Approximately \$4.5M of this increase was subsequently reprogrammed to PE 0307141F (NASS, IO Tech Integration and Tool Development) and 0201004F (Moonglow) to correct an administrative error. In addition, \$3.0M was reprogrammed into this PE (project 5059, Strategic War Planning System) to support ISPAN Block 1 development.

- FY10 (\$15.14M) increase is for the Global Sensor Integrated Network (GSIN) effort. FY08 and FY09 GSIN efforts were previously funded with resources from PEs 01015921F and 0201140J, Combatant Commander Initiative Fund (CCIF).



**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>				<b>PE NUMBER AND TITLE</b> <b>0101313F STRAT WAR PLANNING SYS - USSTRATCOM</b>				<b>PROJECT NUMBER AND TITLE</b> <b>5059 Strategic War Planning System (SWPS)</b>		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5059 Strategic War Planning System (SWPS)	18.429	10.271	10.429	0.000	0.000	0.000	0.000	0.000	0.000	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

FY2008 funding for project 5059 includes \$7.095M of Supplemental funding for a classified USSTRATCOM effort.

**(U) A. Mission Description and Budget Item Justification**

The mission of USSTRATCOM is to establish and provide full-spectrum global strike, coordinated space and information operations capabilities to meet both deterrent and decisive national security objectives, and to provide operational space support, integrated missile defense, Global Command Control Communications and Computers Intelligence Surveillance and Reconnaissance (C4ISR), and specialized planning expertise to the joint warfighter. This mission has been defined by the 2002 Unified Command Plan (UCP) changes 1 and 2. To enable these missions, the Integrated Strategic Planning and Analysis Network (ISPAN) (formerly known as SWPS) must be capable of both deliberate and adaptive planning employing the full spectrum of kinetic and non-kinetic weapons. The planning system will continue to evolve as weapon systems are matured, new systems are developed, and the threat changes, particularly in the area of worldwide proliferation of Weapons of Mass Destruction (WMD).

In FY05, the ISPAN Modernization effort established a redesigned software architecture through requirements definition, and early design and developmental test activities. The ISPAN modernization program includes initiation of Course of Action (COA) Development, workflow and decision support development, Combatant Commander (COCOM) Collaboration (Global Operations Center Collaborative Environment (GOC CE), User Defined Operational Picture (UDOP)), conventional mission planning integration, and Mission Planning Analysis System (MPAS) maintenance and modernization. This includes software coding, integration of multiple internal and external planning applications, as well as developmental and early operational test activities. ISPAN also includes automated data processing equipment (ADPE), software, facilities support, manpower, and training to support the mission objectives of ISPAN, associated deployable and distributed data processing nodes, and subsidiary systems. Activities also include studies and analysis to support both current program planning and execution and future program planning.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) ISPAN Block 1 Modernization (MPAS). This includes development of the Dynamic Application and Rapid Targeting System (DARTS) as well as completion of a Graphical Editor for the legacy Mission Planning and Analysis System (MPAS).	2.278	1.484	
(U) ISPAN Block 1 Modernization (CIE). This effort will develop, integrate and test ISPAN planning tools. This includes, but is not limited to, completing required System Engineering, developing new tools, and modifying existing software tools to interface with newly developed ISPAN tools. The primary focus is to establish a service oriented N-Tier architecture for the ISPAN applications to use. The new/enhanced tools and applications will collectively form the ISPAN Collaborative Information Environment (CIE).	13.556	3.539	
(U) ISPAN Block 1 Pre-FOC Enhancement. This includes (but is not limited to) expanding user base at distributed operations, continue Global Distributed Enhancement (GSD, Enterprise Service Bus migration and technology		5.248	5.277

Exhibit R-2a, RDT&E Project Justification

DATE

May 2009

BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0101313F STRAT WAR PLANNING SYS - USSTRATCOM</b>	PROJECT NUMBER AND TITLE <b>5059 Strategic War Planning System (SWPS)</b>
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(U) <b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
enhancement effort started in FY08, and Global Situational Awareness Tool performance and portal enhancements.			
(U) ISPAN Increment 2 Modernization. This includes post-Milestone B development activities for the next increment of planning tools for the ISPAN Collaborative Information Environment (CIE).			5.152
(U) Classified USSTRATCOM Project (funded in FY08 Supplemental)	2.595		
(U) Total Cost	18.429	10.271	10.429

(U) <b><u>C. Other Program Funding Summary (\$ in Millions)</u></b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Other Procurement, AF WSC 833140 Strategic Command and Control (Program Element 0101313F)	9.861	13.105	13.252						Continuing	TBD

(U) **D. Acquisition Strategy**  
 ISPAN will develop and modernize strategic planning tools for the combatant commanders using an evolutionary acquisition strategy with development contracts that are negotiated and awarded in a competitive environment.

UNCLASSIFIED

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>07 Operational System Development</b>				<b>0101313F STRAT WAR PLANNING SYS - USSTRATCOM</b>					<b>5059 Strategic War Planning System (SWPS)</b>			
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
Air Vehicle Planning System (APS)	TM	BAE, San Diego, CA	4.890	0.000		0.000		0.000		0.000	4.890	47.100
Missile Graphics Planning System (MGPS)	CPAF	Northrop Grumman, Bellevue, NE	1.286	0.000		0.000		0.000		0.000	1.286	15.000
Missile Graphics Planning System (MGPS)	CPAF	Northrop Grumman, Bellevue, NE	5.203	1.778	Oct-07	1.484	Oct-08	0.000		0.000	8.465	41.000
Targeting	CPAF	SAIC, San Diego, Ca	0.800	0.000		0.000		0.000		0.000	0.800	15.000
Targeting	CPAF	SAIC, San Diego, Ca	2.202	0.500	Oct-07	0.000	Oct-08	0.000		0.000	2.702	36.200
ISPAN Modernization	CPAF	Lockheed Martin Integrated Systems, Bellevue, NE	50.513	9.796	Oct-07	6.042	Oct-08	7.656	Oct-09	16.581	90.588	156.183
Miscellaneous Contracts Classified Project (FY08 Supplemental)	CPAF	Pending	10.958	3.760 2.595	Oct-07	2.745	Oct-08	2.773	Oct-09	5.546	25.782 2.595 0.000	TBD
Subtotal Product Development Remarks:			75.852	18.429		10.271		10.429		22.127	137.108	TBD
(U) <u>Support</u>											0.000	
Subtotal Support Remarks:			0.000	0.000		0.000		0.000		0.000	0.000	0.000
(U) <u>(U) Test &amp; Evaluation</u>											0.000	
Subtotal (U) Test & Evaluation Remarks:			0.000	0.000		0.000		0.000		0.000	0.000	0.000
(U) Total Cost			75.852	18.429		10.271		10.429		22.127	137.108	TBD

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Project 5059

Exhibit R-3 (PE 0101313F)

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

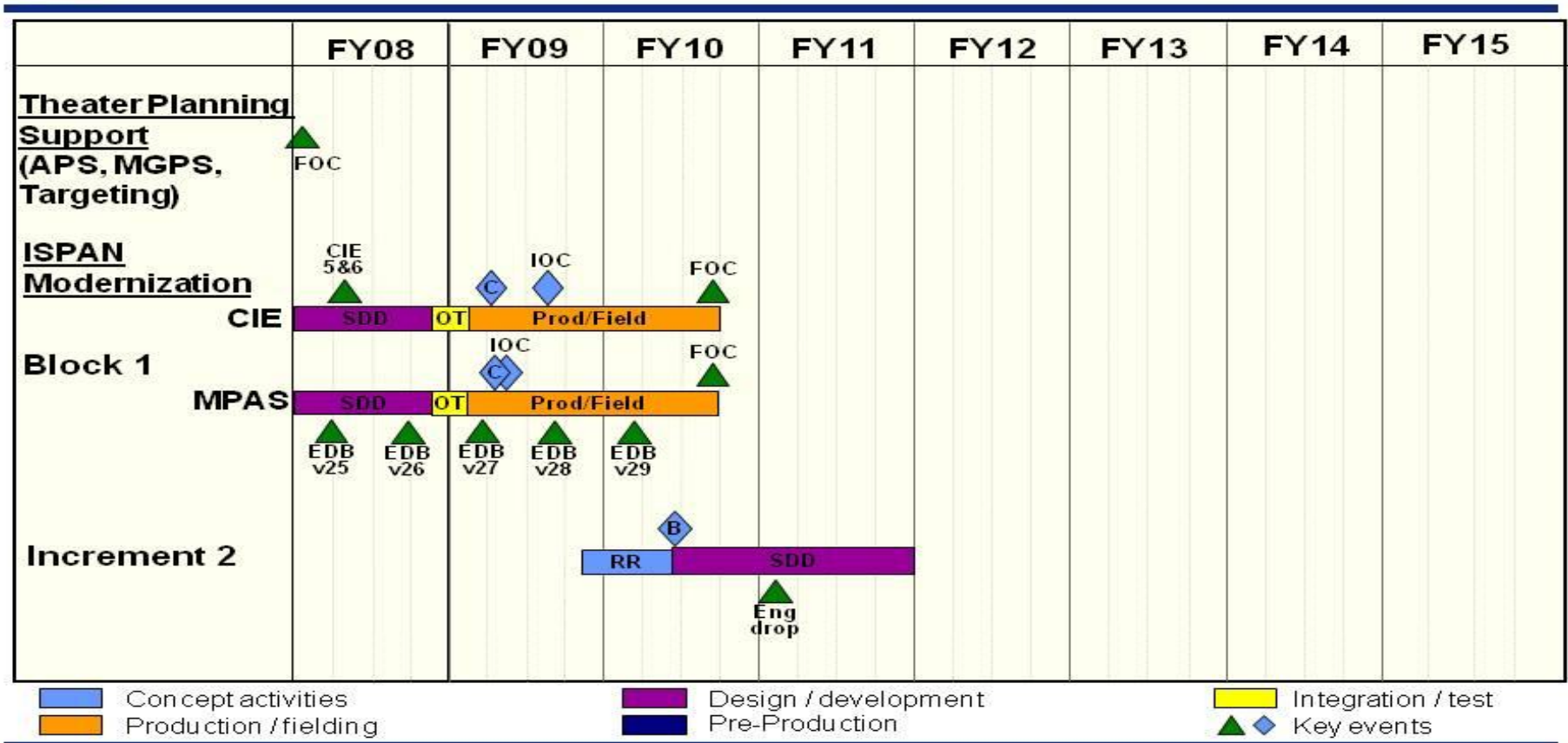
BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0101313F STRAT WAR PLANNING  
SYS - USSTRATCOM

PROJECT NUMBER AND TITLE  
5059 Strategic War Planning System  
(SWPS)



## ISPAN Block 1 / Increment 2 Schedule



PB10 R-Docs

Depicted by installation/production flow

1

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Project 5059

Exhibit R-4 (PE 0101313F)

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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>		DATE <b>May 2009</b>
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BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0101313F STRAT WAR PLANNING SYS - USSTRATCOM</b>	PROJECT NUMBER AND TITLE <b>5059 Strategic War Planning System (SWPS)</b>
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(U) <u>Schedule Profile</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) ISPAN Block 1 MS C		2Q	
(U) ISPAN Block 1 IOT&E	4Q		
(U) ISPAN Block 1 IOC		3Q	
(U) ISPAN Increment 2 MS B			2Q
(U) ISPAN Block 1 FOC			3Q

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> 07 Operational System Development	<b>PE NUMBER AND TITLE</b> 0101313F STRAT WAR PLANNING SYS - USSTRATCOM	<b>PROJECT NUMBER AND TITLE</b> 5282 Joint Navigation Warfare Center (JNWC)
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5282 Joint Navigation Warfare Center (JNWC)	6.730	7.234	8.267	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

Navigation Warfare (NAVWAR) is a warfighting application of electronic warfare (EW), Information Operations (IO), and space control (SC) employing various techniques and technologies to negate or prevent hostile use of positioning, navigation, and timing (PNT) information and protect unimpeded use of PNT information by U.S., Allied, and Coalition Forces while not unduly disrupting peaceful use outside an area of operation. The Joint Navigation Warfare Center (JNWC) integrates and coordinates NAVWAR PNT capabilities across the mission areas of intelligence, surveillance, reconnaissance, information operations, electronic warfare, cyber and space control. The JNWC establishes and maintains the Department’s premier basis of NAVWAR expertise, and provides subject matter expertise and knowledge support to warfighters, Department decision makers, the Federal Interagency (the Department of Homeland Security and other civil agencies concerned with the Critical National Infrastructure), and the coalition through testing and evaluation; modeling, simulation and analysis; and exercise and training support. In recent years, the Global Positioning System (GPS) has become one of the most critical enablers of modern, advanced technology warfare. In an era where everything from advanced weapons systems to basic goods and services are tracked or guided by navigation systems such as GPS, Navigation Warfare is an interest and concern, especially if those systems are interrupted or lost. Likewise, as Global Navigation Satellite Systems (GNSS) proliferate, it becomes necessary to consider not only denying adversary use of GPS but also negating adversary use of alternate GNSS systems for PNT. The primary mission of the JNWC is to provide joint warfighter NAVWAR support through three broad mission areas:

- a. Warfighter Operational Support – The JNWC applies knowledge of PNT vulnerabilities, prevention capabilities, and system operations to integrate NAVWAR as an element of warfighting operations. The JNWC provides reach-back capabilities to assist in resolving NAVWAR issues, address situations involving degradation or denial of PNT capabilities, and recommend actions to mitigate effects of both hostile and non-hostile events. The JNWC develops and maintains current information for the warfighter and theater commanders to include assessments of adversary capabilities, assessments of coalition capabilities and limitations, and other topics of special interest. The JNWC also provides subject matter expertise and knowledge support to Department acquisition and policy decision makers, the Federal Interagency (the Department of Homeland Security and other civil agencies concerned with the Critical National Infrastructure), and the coalition.
- b. Test, Training, Exercises, and Experiments – This JNWC mission area is the centerpiece for maintaining NAVWAR currency of information for the warfighter. The JNWC conducts annual NAVWAR field test events, and provides NAVWAR technical assistance for training, exercises and experiments. The JNWC, as part of this effort, maintains Integrated Joint NAVWAR Test Roadmaps and current intelligence products on adversary NAVWAR capabilities and Coalition NAVWAR capabilities and vulnerabilities. JNWC GYPSY field test events focus on fielded operational systems and capabilities to integrate NAVWAR and PNT operations, to baseline current NAVWAR electronic protection, support, and attack capabilities, and to assist warfighters optimize and deconflict theater/tactical assets. JNWC FORTUNE field test events are more engineering focused and are used to evaluate specific NAVWAR capabilities or vulnerabilities, and to reduce engineering risk for GYPSY events. Test, training, exercise and experiment activities: 1) prepare the joint warfighter for operations in current and rapidly evolving NAVWAR threat

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>		DATE <b>May 2009</b>
BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0101313F STRAT WAR PLANNING SYS - USSTRATCOM</b>	PROJECT NUMBER AND TITLE <b>5282 Joint Navigation Warfare Center (JNWC)</b>

environments; 2) establish priorities, standardized operational procedures for tactics, techniques, and procedures; 3) test electronic attack CONOPs to endure deconfliction and optimization with other operations to mitigate blue force fratricide; and 4) evolve standardized test methods.

c. Navigation Warfare Information Analysis Center (IAC) – The JNWC develops and maintains methods, standards, models and simulations used in NAVWAR analysis and operates the NAVWAR Information Analysis Center (IAC). JNWC evaluates new models for accuracy and applicability to specific situations and rapidly evolving threat environments. It also develops and maintains standard test methodologies created solely by the U.S. as well as test methods developed in collaboration with coalition partners. These standard methodologies ensure data sharing is efficient and effective, and ensures accurate feedback to the operational communities. The JNWC, as part of this effort, manages the GPS EA Frequency Clearance process and conducts independent analysis and verification of EA frequency clearance requests. It also maintains and upgrades the GPS-RPM GPS frequency clearance model as required and conducts modeling and simulation exercises on GPS interference to include test and exercise threat laydowns for DoD organizations unable to perform their own modeling. The NAVWAR IAC serves as a source of NAVWAR information and technical expertise for DoD researchers, engineers, program managers, warfighters, testers, and others. It collects, analyzes, synthesizes, and disseminates scientific and technical information in clearly defined specialized subject areas. It promotes standardization by: 1) providing in-depth analyses; 2) creating products that respond to technical inquiries; 3) preparing state-of-the-art reports, handbooks, and databases; 4) conducting technology assessments; and 5) supporting the exchange of information within the NAVWAR community.

Activities also include studies and analysis to support both current program planning and execution and future program planning.

(U) <b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) NAVWAR Warfighter Operational Support - COCOM reachback analysis, threat assessments, adversary assessments, and intel assessments	1.330	1.733	1.780
(U) NAVWAR Test, Training, Exercises, & Experiments - FORTUNE and GYPSY Field Tests, NATO Trials, U.S. Tests, Exercises and Experiments	2.800	2.725	3.041
(U) NAVWAR Modeling, Simulation, Tools and Methods - Information Analysis Center (IAC), Global Positioning System Reliability Prediction Model (GPS-RPM) Upgrades, GPS frequency clearance evaluations, modeling and simulation methodologies, standards and analysis	2.600	2.776	3.446
(U) Total Cost	6.730	7.234	8.267

(U) <b><u>C. Other Program Funding Summary (\$ in Millions)</u></b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	

- (U) N/A
- (U) **D. Acquisition Strategy**  
 NAVWAR will investigate, test, and simulate potential threats and mitigation strategies for preventing the hostile use of Positioning, Navigation and Timing (PNT) information through the use of competitive contracts and selective employment of government agencies.

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>				<b>PE NUMBER AND TITLE</b> <b>0101313F STRAT WAR PLANNING SYS - USSTRATCOM</b>				<b>PROJECT NUMBER AND TITLE</b> <b>5282 Joint Navigation Warfare Center (JNWC)</b>			
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(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
Subtotal Product Development			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Support</u>												
NAVWAR Warfighter Operational Support	TM	Overlook Systems Technologies, Inc, Vienna VA; Kirtland AFB, NM	0.000	1.330	Oct-07	1.733	Oct-07	1.780	Oct-09	Continuing	TBD	TBD
NAVWAR Modeling, Simulation, Tools & Methods and Integrated Analysis Center	TM	Overlook Systems Technologies, Inc, Vienna VA; Kirtland AFB, NM	0.000	2.600	Oct-07	2.776	Oct-07	3.446	Oct-09	Continuing	TBD	TBD
Subtotal Support			0.000	3.930		4.509		5.226		Continuing	TBD	TBD
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
FORTUNE and GYPSY field tests, NATO trials, US Tests, Exercises and Experiments	PO	Multiple Government Agencies and Overlook Systems Technologies, Inc, Vienna VA; Kirtland AFB, NM and various test ranges	0.000	2.800	Oct-07	2.725	Oct-07	3.041	Oct-09	Continuing	TBD	TBD
Subtotal Test & Evaluation			0.000	2.800		2.725		3.041		Continuing	TBD	TBD
Remarks:												
(U) <u>Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			0.000	6.730		7.234		8.267		Continuing	TBD	TBD

R-1 Line Item No. 121

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Exhibit R-3 (PE 0101313F)



Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

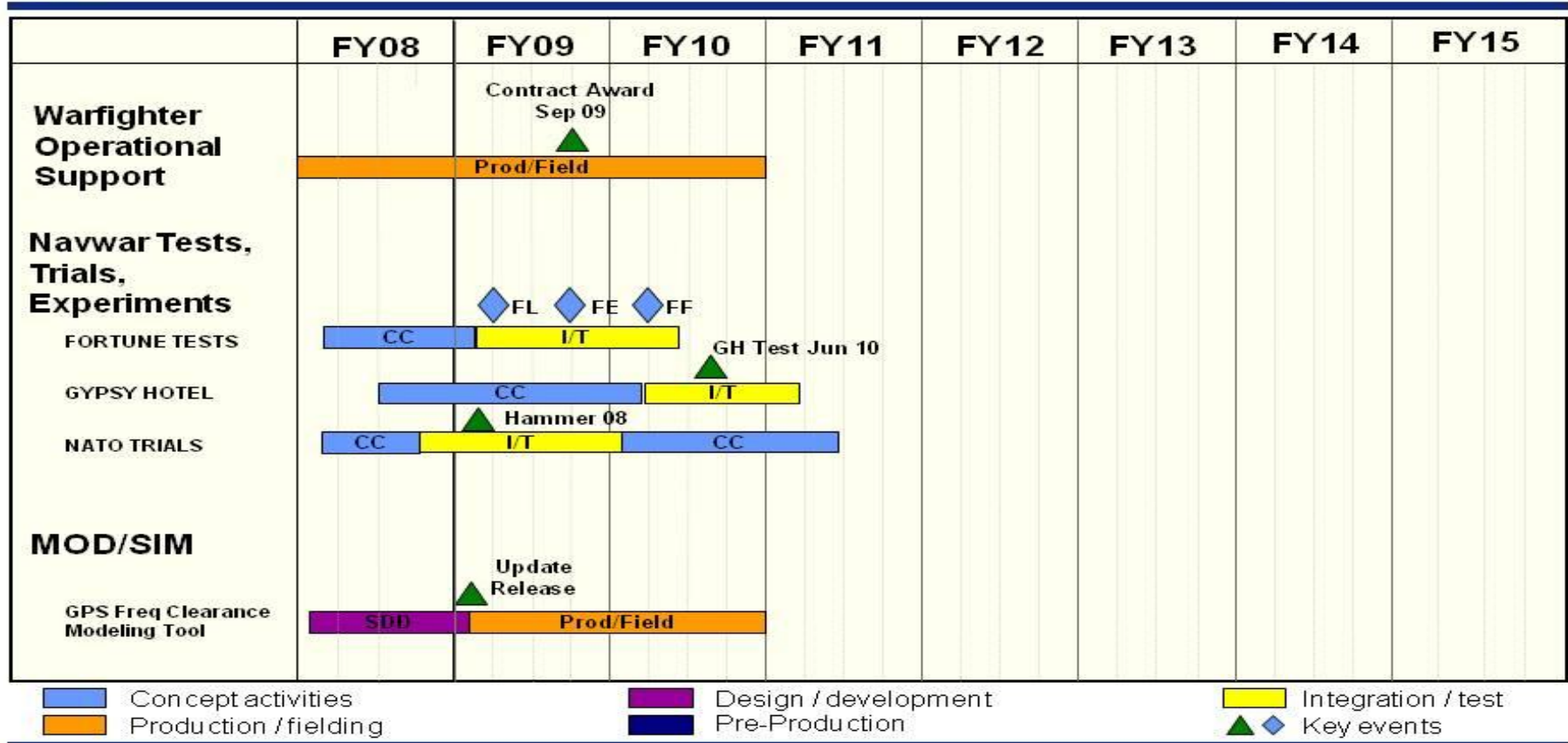
BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0101313F STRAT WAR PLANNING  
SYS - USSTRATCOM

PROJECT NUMBER AND TITLE  
5282 Joint Navigation Warfare Center  
(JNWC)



# Navwar Program Schedule



PB10 R-Docs

Depicted by installation/production flow

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Project 5282

Exhibit R-4 (PE 0101313F)

**UNCLASSIFIED**

<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0101313F STRAT WAR PLANNING SYS - USSTRATCOM</b>	<b>PROJECT NUMBER AND TITLE</b> <b>5282 Joint Navigation Warfare Center (JNWC)</b>
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	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) <b><u>Schedule Profile</u></b>			
(U) NAVWAR Operational Support Contract Award		4Q	
(U) NAVWAR Test, Training, Exercises and Experiments - FORTUNE Field Tests		2-3Q	1Q
(U) NAVWAR Test, Training, Exercises & Experiments - GYPSY HOTEL Tests			3Q
(U) NAVWAR Test, Training, Exercises & Experiments - NATO Trials & Exercises		1Q	
(U) GPS Frequency Clearance		1Q	

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

<b>BUDGET ACTIVITY</b> 07 Operational System Development				<b>PE NUMBER AND TITLE</b> 0101313F STRAT WAR PLANNING SYS - USSTRATCOM				<b>PROJECT NUMBER AND TITLE</b> 5368 GSIN (Global Sensor Integrated Network)			
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total	
5368 GSIN (Global Sensor Integrated Network)	0.000	0.000	15.140	0.000	0.000	0.000	0.000	0.000	Continuing	TBD	
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0			

In FY2010 Project 5368, Global Sensor Integrated Network (GSIN) transferred from PE 0105921F, Service Support to STRATCOM Space Activities, in order to better align effort and appropriation.

**(U) A. Mission Description and Budget Item Justification**

The mission of USSTRATCOM is to establish and provide full-spectrum global strike, coordinated space and information operations capabilities to meet both deterrent and decisive national security objectives, and to provide operational space support, integrated missile defense, Global Command Control Communications and Computers Intelligence Surveillance and Reconnaissance (C4ISR), and specialized planning expertise to the joint warfighter. This mission has been defined by the 2002 Unified Command Plan (UCP) changes 1 and 2. GSIN nets together all sensors, from tactical to strategic, including the Nation's most modern and capable assets - taking advantage of their larger numbers, improved algorithms, mobility and forward deployment to provide earlier cross-cueing and expanded decision space when every second counts. GSIN will permit an IP-based User Defined Operating Picture (UDOP) to augment voice conferencing and rapidly build a single, unambiguous missile event picture allowing real-time senior collaboration for nuclear C2 and improved senior leader situational awareness (SA) and decision-making.

The Nation's strategic C2, sensors and mission planning programs can not rapidly exchange information across multiple missions, creating ambiguity that delays time critical national C2 decision making processes. The problem is most evident in the Department's missile warning (MW) and missile defense (MD) programs. GSIN establishes a unified national architecture integrating disparate MW/MD systems into a single IP-based system providing redundant and unambiguous MW/MD data to national leadership.

Activities also include studies and analysis to support both current program planning and execution and future program planning.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Develop options and implementation plans for the spiral development phase to mature data exposure capabilities and migrate the data to a common, XML net-enabled command capability solution	0.000	0.000	4.070
(U) Provide individual sensor and event track data, status and health data, additional information assurance (IA) capabilities and public key infrastructure certificate software management on secret IP routing networks (SIPRnet)	0.000	0.000	4.070
(U) Develop guard software for DISA secret and below interoperability and creates and coordinates IA documentation. Supports security test and evaluation. Conducts development, non-degradation, and operational testing. Registers data schema and services with appropriate registries/catalogs.	0.000	0.000	7.000
(U) Total Cost	0.000	0.000	15.140

**Exhibit R-2a, RDT&E Project Justification**

DATE

**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0101313F STRAT WAR PLANNING                  SYS - USSTRATCOM</b>	PROJECT NUMBER AND TITLE <b>5368 GSIN (Global Sensor Integrated                  Network)</b>
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**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) CCIF O&M, PE 0201140J, (Combatant Commanders Initiatives Fund)	4.900	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.900	4.900
(U) AF O&M, PE 0105921, (Service Support to STRATCOM Space Activities)	0.000	5.000	0.000	0.000	0.000	0.000	0.000	0.000	5.000	5.000

FY08 COCOM Initiative Fund and FY09 USSTRATCOM O&M initiated GSIN with software modifications to Command and Control Battle Management Communication system and Command and Control Processing Display System Requirements to provide an integrated, internet protocol based Common Operating Picture.

**(U) D. Acquisition Strategy**

GSIN will use MDA, ESC, JFCC-IMD, and other available contract vehicles to develop and modernize the combined MW / MD solution and architecture. These contract vehicles are already in place.

UNCLASSIFIED

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0101313F STRAT WAR PLANNING SYS - USSTRATCOM</b>	<b>PROJECT NUMBER AND TITLE</b> <b>5368 GSIN (Global Sensor Integrated Network)</b>
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<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract</u> <u>Method &amp;</u> <u>Type</u>	<u>Performing</u> <u>Activity &amp;</u> <u>Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2008</u> <u>Cost</u>	<u>FY 2008</u> <u>Cost</u>	<u>FY 2008</u> <u>Award</u> <u>Date</u>	<u>FY 2009</u> <u>Cost</u>	<u>FY 2009</u> <u>Award</u> <u>Date</u>	<u>FY 2010</u> <u>Cost</u>	<u>FY 2010</u> <u>Award</u> <u>Date</u>	<u>Cost to</u> <u>Complete</u>	<u>Total Cost</u>	<u>Target Value</u> <u>of Contract</u>
<u>(U) Product Development</u>												
Missile Warning software development	CPAF	Lockheed Martin, Colorado Springs, CO	0.000					7.000	Jan-10	Continuing	TBD	TBD
Missile Defense software development	CPAF	Lockheed Martin, Gaithersburg, MD	0.000					8.140	Jul-10	Continuing	TBD	TBD
Subtotal Product Development			0.000	0.000		0.000		15.140		Continuing	TBD	TBD
Remarks:												
<u>(U) Support</u>											0.000	0.000
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
<u>(U) Test &amp; Evaluation</u>											0.000	0.000
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
<u>(U) Management</u>											0.000	0.000
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
<u>(U) Total Cost</u>			0.000	0.000		0.000		15.140		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

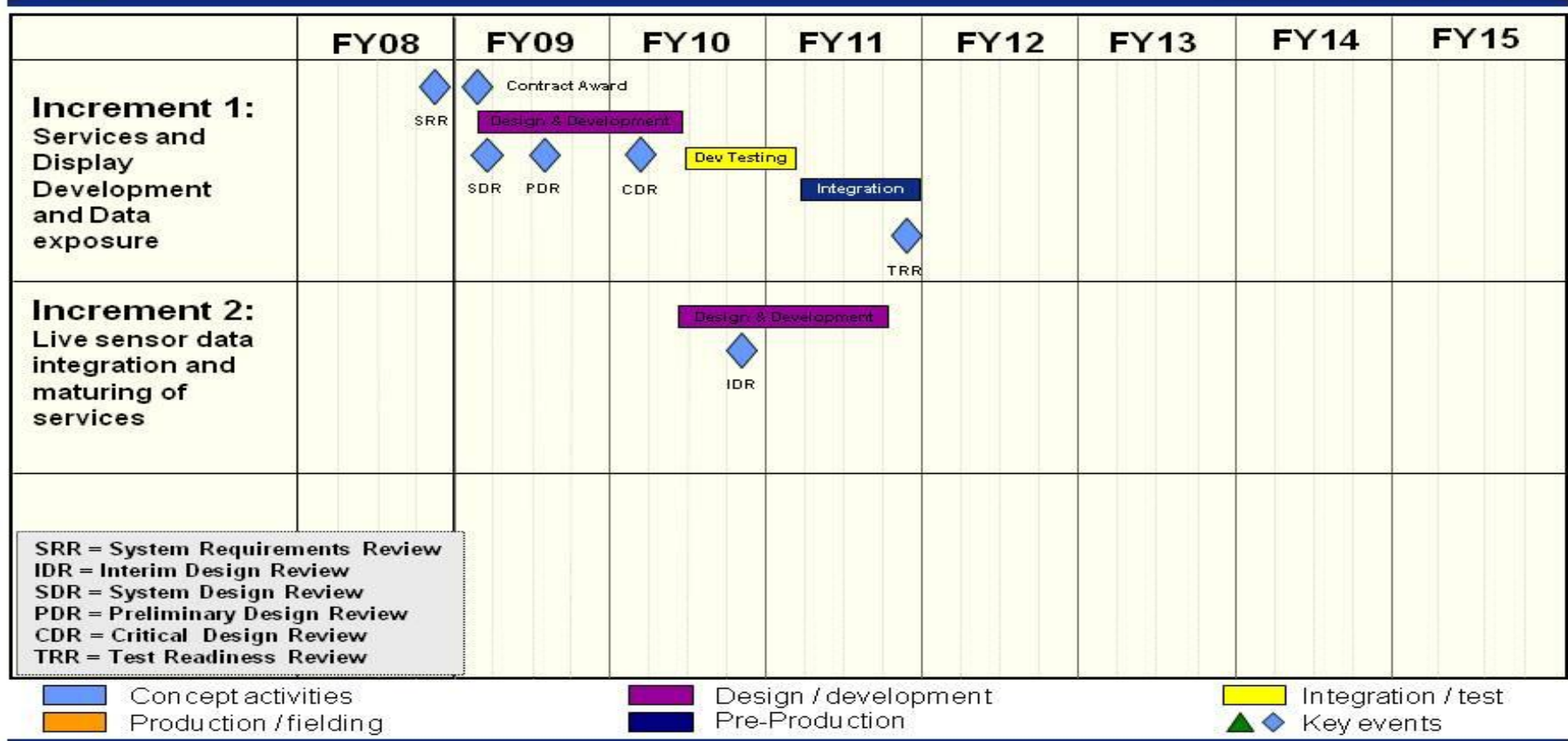
BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0101313F STRAT WAR PLANNING  
SYS - USSTRATCOM

PROJECT NUMBER AND TITLE  
5368 GSIN (Global Sensor Integrated  
Network)



# GSIN Schedule



PB10 R-Docs

Depicted by installation/production flow

1

R-1 Line Item No. 121

Page-16 of 17

Project 5368

Exhibit R-4 (PE 0101313F)

<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0101313F STRAT WAR PLANNING SYS - USSTRATCOM</b>	<b>PROJECT NUMBER AND TITLE</b> <b>5368 GSIN (Global Sensor Integrated Network)</b>
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	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) <b>Schedule Profile</b>			
(U) GSIN contract award, System Design Review		1Q	
(U) GSIN Preliminary Design Review		3Q	
(U) GSIN Complete Design Review			1Q
(U) GSIN Spiral 2 Interim Design Review			4Q
Note: FY09 requirements funded by Combatant Commanders (COCOM) Initiative Fund (CIF).			

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**UNCLASSIFIED**

PE NUMBER: 0102325F  
 PE TITLE: JOINT SURVEILLANCE SYSTEM

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0102325F JOINT SURVEILLANCE SYSTEM</b>
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.000	0.000	9.832	0.000	0.000	0.000	0.000	0.000	0.000	0.000
5371 CRITICAL PARTS REPLACEMENT PROGRAM	0.000	0.000	9.832	0.000	0.000	0.000	0.000	0.000	0.000	0.000

**(U) A. Mission Description and Budget Item Justification**

The FPS-117 radar supports the NORAD, USNORTHCOM, and PACOM missions. The radars are part of the Atmospheric Early Warning System (AEWS), providing radar data to both USAF and Federal Aviation Administration control systems in Alaska. The radars also provide air surveillance capability as part of a bi-national defense program with Canada. The USAF FPS-117s (versions 1 & 4) are no longer in production, however the latest FPS-117 (version 7, aka Block 3) is in production. The Original Equipment Manufacturer (OEM) has continued to advance this radar system's technology and perform service life upgrades for other developing nations, however, Sixty-five percent of LRUs installed in the North American system are no longer manufactured by the OEM and many subcomponents are obsolete rendering the AEWS unupportable.

Air surveillance is NORAD's number #1 issue as stated by the NORAD Commander to Congress in March 2008. Without the immediate replacement of this equipment NORAD will lose air surveillance capability by 2013 due to failing radars.

The AN/FPS-117 Essential Parts Replacement Program restores the radar system capability to its original availability rates by eliminating parts obsolescence and replacing high failure rate components.

**(U) B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget			
(U) Current PBR/President's Budget	0.000	0.000	9.832
(U) Total Adjustments	0.000	0.000	
(U) Congressional Program Reductions			
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer			
(U) <u>Significant Program Changes:</u>			

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>					PE NUMBER AND TITLE <b>0102325F JOINT SURVEILLANCE SYSTEM</b>			PROJECT NUMBER AND TITLE <b>5371 CRITICAL PARTS REPLACEMENT PROGRAM</b>		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5371 CRITICAL PARTS REPLACEMENT PROGRAM	0.000	0.000	9.832	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

The FPS-117 radar supports the NORAD, USNORTHCOM, and PACOM missions. The radars are part of the Atmospheric Early Warning System (AEWS), providing radar data to both USAF and Federal Aviation Administration control systems in Alaska. The radars also provide air surveillance capability as part of a bi-national defense program with Canada. The USAF FPS-117s (versions 1 & 4) are no longer in production, however the latest FPS-117 (version 7, aka Block 3) is in production. The Original Equipment Manufacturer (OEM) has continued to advance this radar system's technology and perform service life upgrades for other developing nations, however, Sixty-five percent of LRUs installed in the North American system are no longer manufactured by the OEM and many subcomponents are obsolete rendering the AEWS unsupportable.

Air surveillance is NORAD's number #1 issue as stated by the NORAD Commander to Congress in March 2008. Without the immediate replacement of this equipment NORAD will lose air surveillance capability by 2013 due to failing radars.

The AN/FPS-117 Essential Parts Replacement Program restores the radar system capability to its original availability rates by eliminating parts obsolescence and replacing high failure rate components.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) System Integration, Purchase of Government Furnished Equipment, Documentation, Test and Certification Support			8.150
(U) System Engineering			1.250
(U) Program Support			0.432
(U) Total Cost	0.000	0.000	9.832

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) OPAF, BPAC 8330810 Comm Elec Mods BP83			20.000	38.000	32.000	26.000				

**(U) D. Acquisition Strategy**

The RDT&E will be used to conduct acquisition activities, integration with equipment not being replaced, documentation and testing. Ogden ALC will be the SPD for this program. They are the best option as they have been the program office/acquisition authority for the radars while it has been in sustainment and have the expertise to conduct the procurement. There will be a full and open competition followed by a Firm Fixed Price contract award.

UNCLASSIFIED

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>07 Operational System Development</b>				<b>0102325F JOINT SURVEILLANCE SYSTEM</b>					<b>5371 CRITICAL PARTS REPLACEMENT PROGRAM</b>			
<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> Prototype Integration	Full & Open FFP	TBD						7.150	Jun-10		7.150	0.000
Subtotal Product Development			0.000	0.000		0.000		7.150		0.000	7.150	0.000
Remarks:												
(U) <u>Support</u> Program Office Support	Organic	OO-ALC						0.432	Jun-10		0.432	0.000
Subtotal Support			0.000	0.000		0.000		0.432		0.000	0.432	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u> Prototype and Testing	Organic	OO-ALC						1.000	Jun-10		1.000	0.000
Subtotal Test & Evaluation			0.000	0.000		0.000		1.000		0.000	1.000	0.000
Remarks:												
(U) <u>Management</u> Management	Full & Open FFP	A&AS Contractor						1.250	Dec-10		1.250	0.000
Subtotal Management			0.000	0.000		0.000		1.250		0.000	1.250	0.000
Remarks:												
(U) Total Cost			0.000	0.000		0.000		9.832		0.000	9.832	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0102325F JOINT SURVEILLANCE  
SYSTEM

PROJECT NUMBER AND TITLE  
5371 CRITICAL PARTS  
REPLACEMENT PROGRAM

## Joint Surveillance System

Schedule Profile Milestones	FY10 Q1	FY10 Q2	FY10 Q3	FY10 Q4
A&AS Contract Award	△			
Prototype Integration Contract Award		△		
Engineering Design Evaluation			△	
Prototype Testing				△

Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0102325F JOINT SURVEILLANCE  
SYSTEM

PROJECT NUMBER AND TITLE

5371 CRITICAL PARTS  
REPLACEMENT PROGRAM

(U) Schedule Profile

FY 2008

FY 2009

FY 2010

(U) A&AS Contract

2-3Q

(U) Prototype Inegration Contract

2-3Q

(U) Engineeirng Design Evaluation

2-3Q

(U) Prototype Testing

2-3Q

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0102326F REGION/ SECTOR OPERATIONS CONTROL CENTER</b>
--	--

Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	22.628	23.793	25.734	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
4592 Region/Sector Operations Modernization Center (R/SAOC)	22.628	23.793	25.734	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

**(U) A. Mission Description and Budget Item Justification**

Battle Control System-Fixed (BCS-F) is the replacement for the fixed sites for the Region/Sector Air Operations Center (R/SAOC), also known as Region Air Operations Center-Air Defense Sector (RAOC-ADS), for the Atmospheric Early Warning System (AEWS). The BCS-F program, which supports NOBLE EAGLE, is an FY07-fielded next-generation battle management command and control system with enhanced capability to integrate data from existing and future civil and military defense surveillance systems into a comprehensive recognized air picture and National Capital Region/Integrated Air Defense System (NCR/IADS). This multi-input single integrated air control picture enhances the North American Aerospace Defense/Combatant Commander's (NORAD/CC's) capability to conduct peacetime air sovereignty, transition, and conventional warfare in the event of aggression toward the North American continent. BCS-F systems serve as the Air Force's Homeland Defense battle management, command, and control hubs and integrate data from radar sensors, data links, and the supporting communications architecture. They provide the tactical communications and data link capabilities with other military and civil systems responsible for conducting the planning, directing, coordinating, and controlling forces for air surveillance, air defense, and control of sovereign US air space (including the National Capital Region). The BCS-F system is a bi-national cooperative program with Canada, ensuring air defense and surveillance capability for the entire North American continent.

The R/SAOC legacy system had reached saturation in its capability to receive, process, display, exchange, and employ air surveillance data from current sensor and communication systems, thus contributing to delays in the kill chain. The outdated technology was costly to sustain and provided no opportunity for application enhancement. The BCS-F system replaced this antiquated system and achieved Initial Operational Capability in October 2006. With each successive increment, BCS-F provides a more effective Homeland Defense capability.

Ongoing planning and associated activities will take place to prevent and overcome diminishing manufacturing sources and obsolescence issues as required.

This program is in Budget Activity 7 - Operational System Development because it provides funding for the replacement of a currently existing and operating system.

Exhibit R-2, RDT&E Budget Item Justification

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0102326F REGION/ SECTOR OPERATIONS CONTROL CENTER

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	23.262	23.858	26.171
(U) Current PBR/President's Budget	22.628	23.793	25.734
(U) Total Adjustments	-0.634	-0.065	
(U) Congressional Program Reductions	0.000		
Congressional Rescissions		-0.065	
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer	-0.634		
(U) <u>Significant Program Changes:</u>			



**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

<b>BUDGET ACTIVITY</b> 07 Operational System Development				<b>PE NUMBER AND TITLE</b> 0102326F REGION/ SECTOR OPERATIONS CONTROL CENTER				<b>PROJECT NUMBER AND TITLE</b> 4592 Region/Sector Operations Modernization Center (R/SAOC)		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
4592 Region/Sector Operations Modernization Center (R/SAOC)	22.628	23.793	25.734	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

Battle Control System-Fixed (BCS-F) is the replacement for the fixed sites for the Region/Sector Air Operations Center (R/SAOC), also known as Region Air Operations Center-Air Defense Sector (RAOC-ADS), for the Atmospheric Early Warning System (AEWS). The BCS-F program, which supports NOBLE EAGLE, is an FY07-fielded next-generation battle management command and control system with enhanced capability to integrate data from existing and future civil and military defense surveillance systems into a comprehensive recognized air picture and National Capital Region/Integrated Air Defense System (NCR/IADS). This multi-input single integrated air control picture enhances the North American Aerospace Defense/Combatant Commander's (NORAD/CC's) capability to conduct peacetime air sovereignty, transition, and conventional warfare in the event of aggression toward the North American continent. BCS-F systems serve as the Air Force's Homeland Defense battle management, command, and control hubs and integrate data from radar sensors, data links, and the supporting communications architecture. They provide the tactical communications and data link capabilities with other military and civil systems responsible for conducting the planning, directing, coordinating, and controlling forces for air surveillance, air defense, and control of sovereign US air space (including the National Capital Region). The BCS-F system is a bi-national cooperative program with Canada, ensuring air defense and surveillance capability for the entire North American continent.

The R/SAOC legacy system had reached saturation in its capability to receive, process, display, exchange, and employ air surveillance data from current sensor and communication systems, thus contributing to delays in the kill chain. The outdated technology was costly to sustain and provided no opportunity for application enhancement. The BCS-F system replaced this antiquated system and achieved Initial Operational Capability in October 2006. With each successive increment, BCS-F provides a more effective Homeland Defense capability.

Ongoing planning and associated activities will take place to prevent and overcome diminishing manufacturing sources and obsolescence issues as required.

This program is in Budget Activity 7 - Operational System Development because it provides funding for the replacement of a currently existing and operating system.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Accomplishments/Planned Program			
(U) Continue Acquisition Activities associated with System Development of the BCS-F, to include but not limited to Software Development, System Integration, Purchase of Government Furnished Equipment, Production Representative Hardware, NCR/IADS, Test, Training and Certification Support.	20.150	19.320	21.543
(U) Continue Program Management/Systems Engineering	1.571	3.313	3.431
(U) Continue Program Support (i.e. travel, supplies, equipment, misc)	0.907	1.160	0.760
(U) Total Cost	22.628	23.793	25.734

Exhibit R-2a, RDT&E Project Justification

DATE

May 2009

BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0102326F REGION/ SECTOR OPERATIONS CONTROL CENTER</b>	PROJECT NUMBER AND TITLE <b>4592 Region/Sector Operations Modernization Center (R/SAOC)</b>
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(U) **C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) OPAF PE 0102326F (Other Procurement Air Force, WSC 833040, Theater Air Control System Improvement)	11.156	14.266	11.328	13.294	11.832	12.133	12.646	13.067	Continuing	TBD

(U) **D. Acquisition Strategy**

The BCS-Fixed program is utilizing an incremental development acquisition strategy to further advance tactical Battle Management C2 capabilities.

UNCLASSIFIED

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>07 Operational System Development</b>				<b>0102326F REGION/ SECTOR OPERATIONS CONTROL CENTER</b>					<b>4592 Region/Sector Operations Modernization Center (R/SAOC)</b>			
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> Continue acquisition activities associated with System Development	CPAF	Thales Raytheon Systems, Fullerton, CA		17.502	Nov-08	17.145	Mar-09	19.602	Dec-09	Continuing	TBD	TBD
Various	Various	Various		0.779	Jan-08	0.000		0.000		Continuing	TBD	TBD
Subtotal Product Development			0.000	18.281		17.145		19.602		Continuing	TBD	TBD
Remarks:												
(U) <u>Support</u> Program Management Tech Spt System Engineering	T&M FFP	A&AS Various Mitre, Bedford, MA		0.512	Jan-08	1.454	Jan-09	1.498	Jan-10	Continuing	TBD	TBD
Program Office Support	Various	Various		0.907	Nov-07	1.160	Nov-08	1.153	Nov-09	Continuing	TBD	TBD
Subtotal Support			0.000	2.478		4.473		4.584		Continuing	TBD	TBD
Remarks:												
(U) <u>Test &amp; Evaluation</u> 46th Test Wing/Other Test Act	Various	Various		1.869	Nov-07	2.175	Dec-08	1.548	Nov-09	Continuing	TBD	TBD
Subtotal Test & Evaluation			0.000	1.869		2.175		1.548		Continuing	TBD	TBD
Remarks:												
(U) Total Cost			0.000	22.628		23.793		25.734		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE  
May 2009

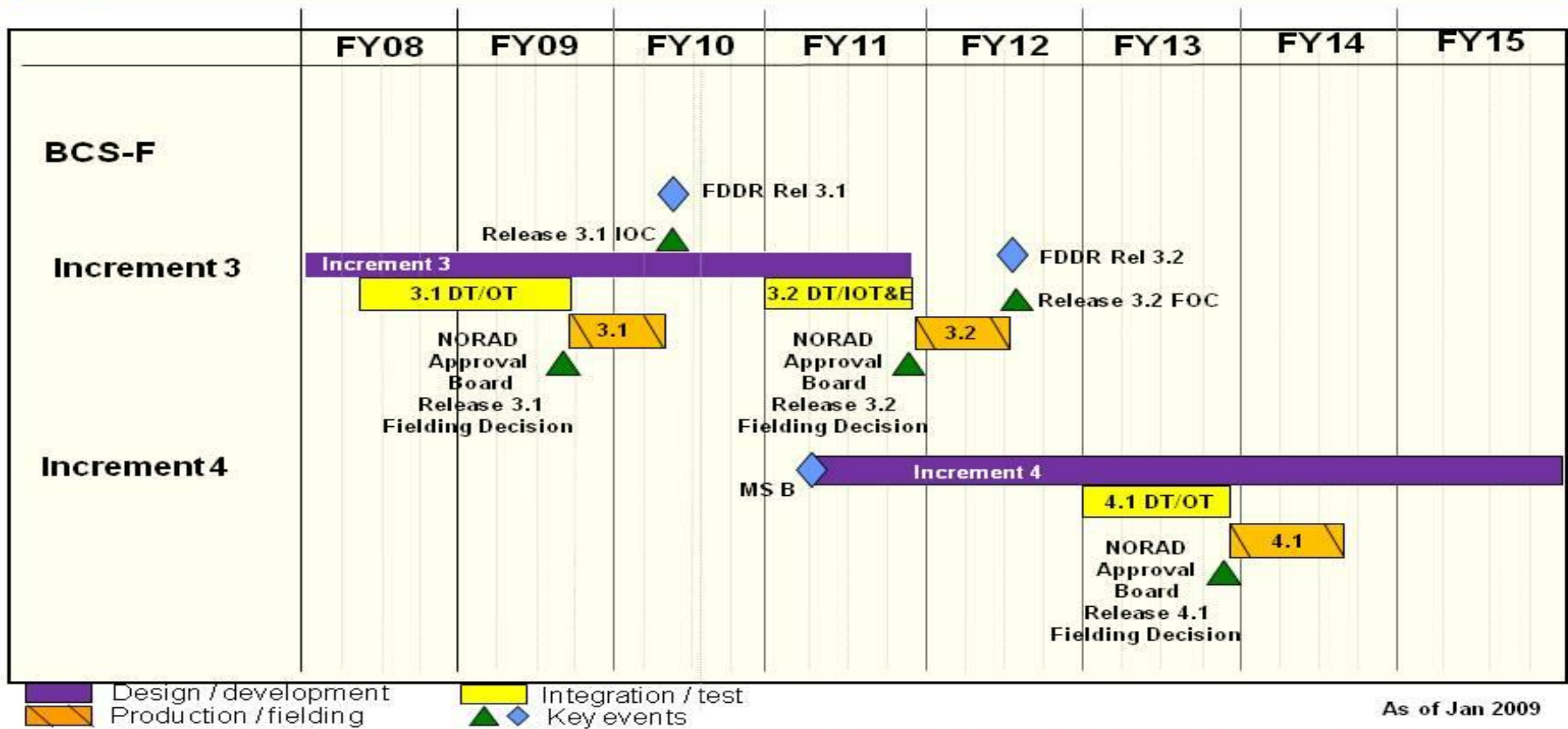
BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0102326F REGION/ SECTOR  
OPERATIONS CONTROL CENTER

PROJECT NUMBER AND TITLE  
4592 Region/Sector Operations  
Modernization Center (R/SAOC)



*BCS - F  
Schedule*



PB10 R-Docs

Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0102326F REGION/ SECTOR                  OPERATIONS CONTROL CENTER</b>	PROJECT NUMBER AND TITLE <b>4592 Region/Sector Operations                  Modernization Center (R/SAOC)</b>
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(U) <u>Schedule Profile</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Continuation of BCS-F Increment 3 Software Development	1-4Q	1-4Q	1-4Q
(U) BCS-F Increment 3 Release 3.1 DT/OT	2-4Q	1-3Q	
(U) BCS-F Increment 3 Release 3.1 Fielding Decisions IOC		3Q	
(U) BCS-F Increment 3 Release 3.1 IOC			2Q
(U) BCS-F Increment 3 Release 3.2 DT/IOT&E			3Q
(U) BCS-F Increment 3 Release 3.2 Fielding Decisions FOC			4Q

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PE NUMBER: 0102823F  
 PE TITLE: STRAT AEROSPACE INTEL SYS ACTIVITIES

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>May 2009</b>
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BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0102823F STRAT AEROSPACE INTEL SYS ACTIVITIES</b>
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.000	0.015	0.018	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5011 Space Situational Awareness Initiatives	0.000	0.015	0.018	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

**(U) A. Mission Description and Budget Item Justification**

In the 2006 Strategic Master Plan, the AFSPC/CC identified a need to provide timely, accurate, relevant intelligence data to support Space Superiority operations - Offensive Counterspace (OCS), Defense Counterspace (DCS), and Space Situational Awareness (SSA). USSTRATCOM further stated the need for such a requirement in its February 2006 Space Control JCD. The SIPB HMMI is AFSPC/A2's response to those requirements. The SIPB HMMI is an information technology that links intelligence analysts to space operators, enabling them to share in the production, dissemination and visualization of predictive and highly graphic decision-making products - SIPBs. The SIPB HMMI gives the JSpOC, JFCCs, and COCOM J2/J3/J5s an Adaptive Planning tool to obtain adversary space and counterspace tactics, centers of gravity, and courses of action. Linking existing space operational and intelligence data, databases, and products, the SIPB HMMI becomes the integral effort for a space intelligence TCPED capability that influences the kill chain.

**(U) B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget		0.015	0.018
(U) Current PBR/President's Budget	0.000	0.015	0.018
(U) Total Adjustments	0.000	0.000	
(U) Congressional Program Reductions			
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer			
(U) <u>Significant Program Changes:</u>			

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>						PE NUMBER AND TITLE <b>0102823F STRAT AEROSPACE INTEL SYS ACTIVITIES</b>		PROJECT NUMBER AND TITLE <b>5011 Space Situational Awareness Initiatives</b>		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5011 Space Situational Awareness Initiatives	0.000	0.015	0.018	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

In the 2006 Strategic Master Plan, the AFSPC/CC identified a need to provide timely, accurate, relevant intelligence data to support Space Superiority operations - Offensive Counterspace (OCS), Defense Counterspace (DCS), and Space Situational Awareness (SSA). USSTRATCOM further stated the need for such a requirement in its February 2006 Space Control JCD. The SIPB HMMI is AFSPC/A2's response to those requirements. The SIPB HMMI is an information technology that links intelligence analysts to space operators, enabling them to share in the production, dissemination and visualization of predictive and highly graphic decision-making products - SIPBs. The SIPB HMMI gives the JSpOC, JFCCs, and COCOM J2/J3/J5s an Adaptive Planning tool to obtain adversary space and counterspace tactics, centers of gravity, and courses of action. Linking existing space operational and intelligence data, databases, and products, the SIPB HMMI becomes the integral effort for a space intelligence TCPED capability that influences the kill chain.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Develop net-centric capability for Space IPB data owners and subscribers across the space and non-space intelligence communities to rapidly update Space IPB doctrinal templates and underlying data		0.007	0.007
(U) Supports integration into Single Integrated Space Picture (SISP)		0.004	0.006
(U) Enable near-real-time intelligence support to space battle management, space combat assessment, and adversary space trending and pattern analysis		0.004	0.005
(U) Total Cost	0.000	0.015	0.018

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) N/A										

**(U) D. Acquisition Strategy**

Spiral 2 (June 2007 - May 2009): Transform Space IPB registered and tagged service oriented architecture data into a display of adversary space and counterspace situation. Provide capability to drill down to underlying specific threat data. Develop capability to rapidly updates Space IPB doctrinal templates and underlying data through immediate discovery, manipulation and posting of revised data by Space IPB data owners and subscribers across the space and non-space intelligence communities.

Spiral 3 (June 2007 - June 2009): Further refine the Space IPB HMMI concept by adding RAIDRS, Counter-ISR, and other data feeds to existing Space IPB data



<b>Exhibit R-2a, RDT&amp;E Project Justification</b>		DATE <b>May 2009</b>
<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0102823F STRAT AEROSPACE INTEL SYS ACTIVITIES</b>	<b>PROJECT NUMBER AND TITLE</b> <b>5011 Space Situational Awareness Initiatives</b>

sources.

Spiral 4 (October 2009 - October 2016): Transition from Space IPB data and content management to architectures, hardware, and software that enable NRT intelligence support to space battle management, space combat assessment, and adversary space trending and pattern analysis. Establish an intelligence-influenced visualization tasking of global space surveillance and theater ISR assets as well as decision aids to interpret the delivery of recent combat effects.

UNCLASSIFIED

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>07 Operational System Development</b>				<b>0102823F STRAT AEROSPACE INTEL SYS ACTIVITIES</b>					<b>5011 Space Situational Awareness Initiatives</b>			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
Space Situational Awareness Initiatives	TBD	TBD				0.015	Jan-09	0.018	Jan-10	Continuing	TBD	TBD
Subtotal Product Development			0.000	0.000		0.015		0.018		Continuing	TBD	TBD
Remarks:												
(U) <u>Support</u>												
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			0.000	0.000		0.015		0.018		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0102823F STRAT AEROSPACE INTEL  
SYS ACTIVITIES

PROJECT NUMBER AND TITLE

5011 Space Situational Awareness  
Initiatives

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Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0102823F STRAT AEROSPACE INTEL  
SYS ACTIVITIES

PROJECT NUMBER AND TITLE

5011 Space Situational Awareness  
Initiatives

(U) Schedule Profile

FY 2008

FY 2009

FY 2010

(U) Space Situational Awareness Initiatives

1-4Q

1-4Q

**UNCLASSIFIED**

PE NUMBER: 0203761F  
 PE TITLE: Warfighter Rapid Acquisition Program

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0203761F Warfighter Rapid Acquisition Program</b>
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	21.757	20.751	11.996	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
4936 Warfighter Rapid Acquisition Program	21.757	20.751	11.996	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

**(U) A. Mission Description and Budget Item Justification**

The Warfighter Rapid Acquisition Process (WRAP) provides rapid transition funding for the development and fielding of highly successful competitive experiments, demonstrations, and innovative approaches to support the Expeditionary Air Force (EAF) and other warfighters. WRAP supports the specific DoD goal of significantly shortening the acquisition response time and acquisition cycle times. This process is expected to shorten the project decision/initiation time by 2-5 years for selected projects due to the integrated headquarters review and immediate availability of transition funding. The WRAP process is specifically designed to deal with initiatives throughout the fiscal year as they arise resulting in a sequential distribution of WRAP funding over the course of that entire execution year. The WRAP process allows the Air Force the flexibility to acquire innovative concepts and initiatives and transition them to the warfighter annually in a manner that coincides with Air Forces' development of the President's Budget.

Candidate projects will compete for WRAP approval and funds based on business case analyses, actual or potential operational impacts, cost savings, project development, production, lifecycle costs, project risk and cost of delay.

The Air Force, through appropriate program offices, will manage the acquisition and development process for the integration and fielding of WRAP-approved projects. Each project will have a complete acquisition plan defined and approved as a criterion for project selection and subsequent funding. Each sponsoring Major Command/Agency must to commit full project funding in the subsequent programming cycle.

Congress will be notified when all projects have been approved at the end of the current fiscal year via Congressional Notification Letters.

This effort is Budget Activity 7, Operational System Development, because the program provides a vehicle for developing operational concepts and new technologies for enhancing capabilities of the 21st century aerospace force.

Exhibit R-2, RDT&E Budget Item Justification

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0203761F Warfighter Rapid Acquisition Program

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	21.757	20.751	12.018
(U) Current PBR/President's Budget	21.757	20.751	11.996
(U) Total Adjustments	0.000	0.000	
(U) Congressional Program Reductions			
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer			
(U) <u>Significant Program Changes:</u>			

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>				PE NUMBER AND TITLE <b>0203761F Warfighter Rapid Acquisition Program</b>				PROJECT NUMBER AND TITLE <b>4936 Warfighter Rapid Acquisition Program</b>		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
4936 Warfighter Rapid Acquisition Program	21.757	20.751	11.996	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

The Warfighter Rapid Acquisition Process (WRAP) provides rapid transition funding for the development and fielding of highly successful competitive experiments, demonstrations, and innovative approaches to support the Expeditionary Air Force (EAF) and other warfighters. WRAP supports the specific DoD goal of significantly shortening the acquisition response time and acquisition cycle times. This process is expected to shorten the project decision/initiation time by 2-5 years for selected projects due to the integrated headquarters review and immediate availability of transition funding. The WRAP process is specifically designed to deal with initiatives throughout the fiscal year as they arise resulting in a sequential distribution of WRAP funding over the course of that entire execution year. The WRAP process allows the Air Force the flexibility to acquire innovative concepts and initiatives and transition them to the warfighter annually in a manner that coincides with Air Forces' development of the President's Budget.

Candidate projects will compete for WRAP approval and funds based on business case analyses, actual or potential operational impacts, cost savings, project development, production, lifecycle costs, project risk and cost of delay.

The Air Force, through appropriate program offices, will manage the acquisition and development process for the integration and fielding of WRAP-approved projects. Each project will have a complete acquisition plan defined and approved as a criterion for project selection and subsequent funding. Each sponsoring Major Command/Agency must to commit full project funding in the subsequent programming cycle.

Congress will be notified when all projects have been approved at the end of the current fiscal year via Congressional Notification Letters.

This effort is Budget Activity 7, Operational System Development, because the program provides a vehicle for developing operational concepts and new technologies for enhancing capabilities of the 21st century aerospace force.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Planned WRAP project selection and project initiation	21.757	20.751	11.996
(U) Total Cost	21.757	20.751	11.996

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Not Applicable										

**(U) D. Acquisition Strategy**

WRAP enables Air Force innovation including experimentation and spiral development processes to decrease fielding timelines and allows development, fielding, or upgrading of systems until the sponsoring MAJCOM/Agency can incorporate them into their subsequent submission. The Air Force, through appropriate program

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>		DATE <b>May 2009</b>
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BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0203761F Warfighter Rapid Acquisition Program</b>	PROJECT NUMBER AND TITLE <b>4936 Warfighter Rapid Acquisition Program</b>
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offices, will manage the acquisition and development process for the integration and fielding of WRAP approved projects. Each project will have a complete acquisition plan defined and approved as a criterion for project selection and subsequent funding. The Air Staff and the Air Force corporate structure will complete an Operations and Acquisition Review to ensure project affordability and appropriateness within the Air Force Overall program. In order to rapidly acquire warfighting capabilities the WRAP process nominates projects directly to the VCSAF, CSAF and SECAF for final approval.



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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>07 Operational System Development</b>				<b>0203761F Warfighter Rapid Acquisition Program</b>					<b>4936 Warfighter Rapid Acquisition Program</b>			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
Subtotal Product Development			0.000	0.000		0.000		0.000		0.000	0.000	TBD
Remarks:												TBD
(U) <u>Support</u>												
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>	Various	Multiple	12.125	21.757	Jan-08	20.751	Jan-09	11.996	Jan-10	Continuing	TBD	TBD
Subtotal Test & Evaluation			12.125	21.757		20.751		11.996		Continuing	TBD	TBD
Remarks:	WRAP funds are distributed to initiatives capable of utilizing 3600 monies.											
(U) <u>Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Various</u>												
(U) Total Cost			12.125	21.757		20.751		11.996		Continuing	TBD	TBD
Remarks:												

Exhibit R-4, RDT&E Schedule Profile

DATE  
**May 2009**

BUDGET ACTIVITY  
**07 Operational System Development**

PE NUMBER AND TITLE  
**0203761F Warfighter Rapid Acquisition Program**

PROJECT NUMBER AND TITLE  
**4936 Warfighter Rapid Acquisition Program**

**WRAP Schedule**

WRAP Schedule	FY08				FY09				FY10			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Acquisition Milestones	Ongoing WRAP cycle											
T&E Milestones	■ □	■ □	■ □									
Delivery Schedule	Ongoing WRAP cycle											

- Annual Data Call for subsequent year WRAP Projects
- Award of project funding for selected programs

Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0203761F Warfighter Rapid Acquisition Program</b>	PROJECT NUMBER AND TITLE <b>4936 Warfighter Rapid Acquisition Program</b>
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(U) <u>Schedule Profile</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) FY 08 WRAP Project Initiation (Planned)	1Q		
(U) FY08 WRAP Project Approval/Project funding (Planned)	2-4Q		
(U) FY 09 WRAP Project Initiation (Planned)		1Q	
(U) FY 09 WRAP Project Approval/Project funding (Planned)		2-4Q	
(U) FY 10 WRAP Project Initiation (Planned)			1Q
(U) FY 10 WRAP Project Approval/Project funding (Planned)			2-4Q

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PE NUMBER: 0205219F  
 PE TITLE: MQ-9 Development and Fielding

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0205219F MQ-9 Development and Fielding</b>
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	55.863	46.431	39.245	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5246 MQ-9 Development and Fielding	55.863	46.431	39.245	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

FY 2010 funding totals do not include \$1.4M requested for Overseas Contingency Operations.

**(U) A. Mission Description and Budget Item Justification**

The basic MQ-9 Reaper system consists of the aircraft, sensors, a control station, communications equipment, weapon kits, support equipment, simulator and training devices, Readiness Spares Packages (RSP), technical data/training, and personnel required to operate, maintain, and sustain the system. The system is designed to be modular and open-ended: mission-specific equipment is employed in a 'plug-and-play' mission kit concept allowing specific aircraft and control station configurations to be tailored to fit mission needs.

The MQ-9 Reaper aircraft is a single-engine, turbo-prop remotely piloted aircraft designed to operate over-the-horizon at medium-to-high altitude for long endurance sorties. The aircraft is designed primarily to prosecute critical emerging Time-Sensitive-Targets (TSTs) as a radar, Electro-optical/Infra-red(EO/IR), and laser designator-based attack asset with on-board hard-kill capability (hunter-killer) and also perform Intelligence, Surveillance, Reconnaissance and Target Acquisition (ISR TA) as a secondary role. In the hunter-killer role, the aircraft will employ fused multi-spectral sensors to automatically find, fix, and track ground targets (Automatic Target Cueing (ATC), Target Location Accuracy (TLA), Metric Sensor and other capabilities) and assess post-strike results. The MQ-9 is in continuing development and will field capability through incremental upgrades. Capabilities in development include increasing the aircraft's gross take-off weight; enhancing aircraft systems to include integrated redundant avionics, ice detection capability, navigation system upgrades, electrical system upgrades, sensor/stores management computer, MIL-STD-1760 advanced weapons data bus, advanced sensor and weapons payloads, and improved human-machine interface; integrating standard precision weapons (AGM-114 Hellfire missile and GBU-12/38/49 guided bombs); Mode 5 integration, hardware and software upgrades to the ground control station for MQ-9 operations; completing airworthiness certification; weapons system certification and accreditation; and producing applicable training devices that emulate aircraft capabilities. Subsequent investments will continue to evolve the MQ-9's capabilities to meet and integrate new requirements (e.g. SIGINT, communications, Wide Area Airborne Surveillance (WAAS) and other sensors and weapons), and address reliability and maintainability and safety issues. Activities also include studies and analysis to support both current program planning and execution and future program planning.

The Ground Control Station (GCS) functions as the aircraft cockpit and can control the aircraft either within line-of-sight (LOS) or beyond LOS (BLOS) via a combination of satellite relay and terrestrial communications. The GCS is either mobile to support forward operating locations or fixed at a facility to support Remote Split Operations (RSO). The GCS has the capability to perform mission planning; provide a means for manual control, and a GCS configuration to allow control of multiple aircraft and payloads; allow personnel to launch, recover, and monitor aircraft, payloads, and system communications status; secure data links to receive payload sensor data and command links; monitor threats to the aircraft; display common operation picture; and provide support functions. Additionally, a Launch and Recovery GCS (LRGCS) allows for servicing, systems checks, maintaining, launching, and recovering aircraft under LOS control for hand-off to a mobile or fixed facility GCS. The GCS will continue to evolve and upgrade its capabilities to keep pace with MQ-9 system capabilities and the missions they perform.

**Exhibit R-2, RDT&E Budget Item Justification**

DATE

**May 2009**

BUDGET ACTIVITY

**07 Operational System Development**

PE NUMBER AND TITLE

**0205219F MQ-9 Development and Fielding**

This program will participate in studies, analysis, development, testing, and implementation of future unmanned aircraft systems (UASs) and various standards to pursue joint, Allied, and coalition interoperability.

This program is in Budget Activity 7, Operational Systems Development, because it involves Air Force R&D to field a highly capable operational system and provide essential operational capabilities.

Prior year costs reflected on the R-3 were included in the Predator Program Element.

**(U) B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	63.862	43.557	37.717
(U) Current PBR/President's Budget	55.863	46.431	39.245
(U) Total Adjustments	-7.999	2.874	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.126	
Congressional Increases		3.000	
Reprogrammings	-7.999		
SBIR/STTR Transfer			

**(U) Significant Program Changes:**

Reduction on RDT&E funding between FY09 and FY10 reflects completion of System Design Development (SDD) Increment I activities  
 FY09 includes \$3M of congressional add funding for Hancock Field/UAS Portal.

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

May 2009

BUDGET ACTIVITY <b>07 Operational System Development</b>				PE NUMBER AND TITLE <b>0205219F MQ-9 Development and Fielding</b>				PROJECT NUMBER AND TITLE <b>5246 MQ-9 Development and Fielding</b>			
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total	
5246 MQ-9 Development and Fielding	55.863	46.431	39.245	0.000	0.000	0.000	0.000	0.000	Continuing	TBD	
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0			

FY 2010 funding totals do not include \$1.4M requested for Overseas Contingency Operations.

(U) **A. Mission Description and Budget Item Justification**

The basic MQ-9 Reaper system consists of the aircraft, sensors, a control station, communications equipment, weapon kits, support equipment, simulator and training devices, Readiness Spares Packages (RSP), technical data/training, and personnel required to operate, maintain, and sustain the system. The system is designed to be modular and open-ended: mission-specific equipment is employed in a 'plug-and-play' mission kit concept allowing specific aircraft and control station configurations to be tailored to fit mission needs.

The MQ-9 Reaper aircraft is a single-engine, turbo-prop remotely piloted aircraft designed to operate over-the-horizon at medium-to-high altitude for long endurance sorties. The aircraft is designed primarily to prosecute critical emerging Time-Sensitive-Targets (TSTs) as a radar, Electro-optical/Infra-red (EO/IR), and laser designator-based attack asset with on-board hard-kill capability (hunter-killer) and also perform Intelligence, Surveillance, Reconnaissance and Target Acquisition (ISR TA) as a secondary role. In the hunter-killer role, the aircraft will employ fused multi-spectral sensors to automatically find, fix, and track ground targets (Automatic Target Cueing (ATC), Target Location Accuracy (TLA), Metric Sensor and other capabilities) and assess post-strike results. The MQ-9 is in continuing development and will field capability through incremental upgrades. Capabilities in development include increasing the aircraft's gross take-off weight; enhancing aircraft systems to include integrated redundant avionics, ice detection capability, navigation system upgrades, electrical system upgrades, sensor/stores management computer, MIL-STD-1760 advanced weapons data bus, advanced sensor and weapons payloads, and improved human-machine interface; integrating standard precision weapons (AGM-114 Hellfire missile and GBU-12/38/49 guided bombs); Mode 5 integration, hardware and software upgrades to the ground control station for MQ-9 operations; completing airworthiness certification; weapons system certification and accreditation; and producing applicable training devices that emulate aircraft capabilities. Subsequent investments will continue to evolve the MQ-9's capabilities to meet and integrate new requirements (e.g. SIGINT, communications, Wide Area Airborne Surveillance (WAAS) and other sensors and weapons), and address reliability and maintainability and safety issues. Activities also include studies and analysis to support both current program planning and execution and future program planning.

The Ground Control Station (GCS) functions as the aircraft cockpit and can control the aircraft either within line-of-sight (LOS) or beyond LOS (BLOS) via a combination of satellite relay and terrestrial communications. The GCS is either mobile to support forward operating locations or fixed at a facility to support Remote Split Operations (RSO). The GCS has the capability to perform mission planning; provide a means for manual control, and a GCS configuration to allow control of multiple aircraft and payloads; allow personnel to launch, recover, and monitor aircraft, payloads, and system communications status; secure data links to receive payload sensor data and command links; monitor threats to the aircraft; display common operation picture; and provide support functions. Additionally, a Launch and Recovery GCS (LRGCS) allows for servicing, systems checks, maintaining, launching, and recovering aircraft under LOS control for hand-off to a mobile or fixed facility GCS. The GCS will continue to evolve and upgrade its capabilities to keep pace with MQ-9 system capabilities and the missions they perform.

**Exhibit R-2a, RDT&E Project Justification**

DATE

**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0205219F MQ-9 Development and Fielding</b>	PROJECT NUMBER AND TITLE <b>5246 MQ-9 Development and Fielding</b>
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This program will participate in studies, analysis, development, testing, and implementation of future unmanned aircraft systems (UASs) and various standards to pursue joint, Allied, and coalition interoperability.

This program is in Budget Activity 7, Operational Systems Development, because it involves Air Force R&D to field a highly capable operational system and provide essential operational capabilities.

Prior year costs reflected on the R-3 were included in the Predator Program Element.

(U) <b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) MQ-9 System Development and Demonstration (SDD). Includes aircraft/GCS/Communication system improvements, development and integration of follow-on sensors, weapon and payload integration, test and training capability, technical data.	25.365	15.684	25.200
(U) EO/IR Development	1.110	0.000	0.684
(U) MQ-9 TLA Development	7.821	6.955	5.537
(U) Other Government Costs, including Developmental and Operational Test support, SATCOM, Urgent Services	13.926	12.492	7.824
(U) Operator Simulator	5.241	5.500	0.000
(U) SAR Upgrade	2.400	5.800	0.000
(U) Total Cost	55.863	46.431	39.245

(U) <b><u>C. Other Program Funding Summary (\$ in Millions)</u></b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Other APPN										
(U) Aircraft Procurement, AF (PE 0205219F)	374.537	248.598	489.469						Continuing	TBD
(U) Aircraft Modification, AF (PE 0205219F)	16.939	44.520	29.287						Continuing	TBD

This funding profile includes the following: \$316.462M for Aircraft Procurement appropriated in the FY08 GWOT Supplemental, \$87.642M for Aircraft Procurement appropriated in the FY09 Bridge Supplemental.

(U) **D. Acquisition Strategy**  
 The MQ-9 Reaper system will be acquired sole-source with General Atomics-ASI as the prime contractor. Raytheon is the sole source provider of the MTS-B system.



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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>07 Operational System Development</b>				<b>0205219F MQ-9 Development and Fielding</b>					<b>5246 MQ-9 Development and Fielding</b>			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
MQ-9 System Development and Demonstration	SS/CP/IF/C PFF	GA-ASI, Rancho Bernardo CA	118.660	25.365	Jan-08	15.684	Feb-09	25.200	Jan-10	Continuing	TBD	TBD
EO/IR Development	CPFF	Raytheon, McKinney TX	2.188	1.110	Jul-08	0.000		0.684	Feb-10	Continuing	TBD	TBD
Operator Simulator Development	CPFF	677 AESG, Wright-Patters on AFB OH	0.000	5.240	Jul-08	5.500	Mar-09	0.000		Continuing	TBD	TBD
SAR Upgrade	CPFF	GA-RSG, San Diego, CA	0.000	2.400	Apr-08	5.800	Mar-09	0.000		Continuing	TBD	TBD
MQ-9 TLA	Various	Raytheon, McKinney TX	0.000	7.821	Mar-08	6.955	Apr-09	5.537	Jan-10	Continuing	TBD	TBD
Subtotal Product Development			120.848	41.936		33.939		31.421		Continuing	TBD	TBD
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
Program Support	Various	Various	11.611	13.927	Mar-08	12.492	Feb-09	7.824	Feb-10	Continuing	TBD	TBD
Subtotal Test & Evaluation			11.611	13.927		12.492		7.824		Continuing	TBD	TBD
Remarks:												
(U) Total Cost			132.459	55.863		46.431		39.245		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0205219F MQ-9 Development and Fielding

PROJECT NUMBER AND TITLE  
5246 MQ-9 Development and Fielding



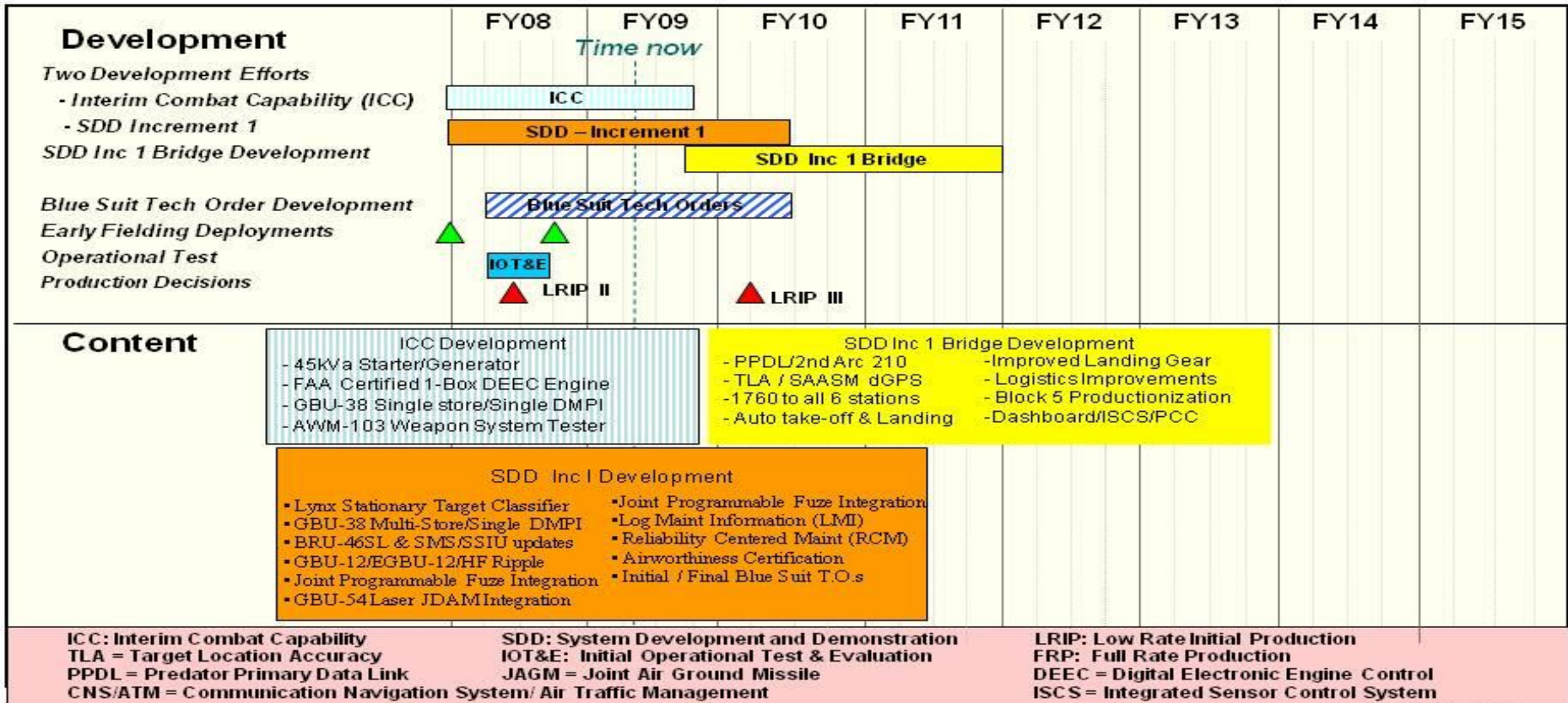
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# MQ-9 Reaper RDT&E Schedule

U.S. AIR FORCE

*Dominant Air Power: Design For Tomorrow... Deliver Today*



▲ Program Milestone

As of: April 09

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R-1 Line Item No. 128

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Project 5246

Exhibit R-4 (PE 0205219F)

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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>		DATE <b>May 2009</b>
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BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0205219F MQ-9 Development and Fielding</b>	PROJECT NUMBER AND TITLE <b>5246 MQ-9 Development and Fielding</b>
---	--	---

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) <b><u>Schedule Profile</u></b>			
(U) Blue Suit Tech Order Contract Start	2Q		
(U) IOT&E Completion	4Q		
(U) SDD Bridge Contract Start		3Q	
(U) ICC Contract Completion		3Q	
(U) SDD Increment 1 Contract Completion			2Q
(U) Blue Suit Tech Order Contract End			2Q

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PE NUMBER: 0207040F  
 PE TITLE: Multi-Platform Electronics

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0207040F Multi-Platform Electronics</b>
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.000	0.000	14.747	0.000	0.000	0.000	0.000	0.000	0.000	31.000
5310 EA Pod DRFM Upgrade	0.000	0.000	14.747	0.000	0.000	0.000	0.000	0.000	0.000	31.000

**(U) A. Mission Description and Budget Item Justification**

Overall, the PE funds on-going sustainment, maintenance, and upgrade of Multi-Platform Electronic Attack (EA) jamming pods and associated combat test equipment as well as sustainment of various other Electronic Warfare equipment. Specifically, this program provides procurement, research and development, and operations and maintenance for sustaining the ALQ-131 and ALQ-184 EA jamming pods. These pods are the sole self-protection jamming systems for US Air Force A-10 aircraft and most models of the F-16 aircraft.

This upgrade to the ALQ-131 is necessary to keep pace with adversary technological advances in surface-to-air and air-to-air missile systems. Digital Radio Frequency Memory (DRFM) allows an electronic system to digitally record and store characteristics of received signals in order to produce a jamming pulse that more precisely replicates the threat systems pulse. With the current/near term threat systems the A-10 and F-16 are likely to encounter, this level of fidelity is necessary to effectively protect these aircraft in this increasingly lethal environment.

This PE is in Budget Activity 7 - Operational System Development because it supports upgrade development of the ALQ-131, a fielded system.

**(U) B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget		0.000	0.000
(U) Current PBR/President's Budget	0.000	0.000	14.747
(U) Total Adjustments	0.000	0.000	
(U) Congressional Program Reductions			
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer			
(U) <u>Significant Program Changes:</u>			

Exhibit R-2a, RDT&E Project Justification

DATE  
May 2009

BUDGET ACTIVITY <b>07 Operational System Development</b>				PE NUMBER AND TITLE <b>0207040F Multi-Platform Electronics</b>				PROJECT NUMBER AND TITLE <b>5310 EA Pod DRFM Upgrade</b>			
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total	
5310 EA Pod DRFM Upgrade	0.000	0.000	14.747	0.000	0.000	0.000	0.000	0.000	0.000	31.000	
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0			

(U) **A. Mission Description and Budget Item Justification**

Overall, the PE funds on-going sustainment, maintenance, and upgrade of Multi-Platform Electronic Attack (EA) jamming pods and associated combat test equipment as well as sustainment of various other Electronic Warfare equipment. Specifically, this program provides procurement, research and development, and operations and maintenance for sustaining the ALQ-131 and ALQ-184 EA jamming pods. These pods are the sole self-protection jamming systems for US Air Force A-10 aircraft and most models of the F-16 aircraft.

This upgrade to the ALQ-131 is necessary to keep pace with adversary technological advances in surface-to-air and air-to-air missile systems. Digital Radio Frequency Memory (DRFM) allows an electronic system to digitally record and store characteristics of received signals in order to produce a jamming pulse that more precisely replicates the threat systems pulse. With the current/near term threat systems the A-10 and F-16 are likely to encounter, this level of fidelity is necessary to effectively protect these aircraft in this increasingly lethal environment.

This PE is in Budget Activity 7 - Operational System Development because it supports upgrade development of the ALQ-131, a fielded system.

(U) **B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) ALQ-131 DRFM SDD			14.747
(U)			
(U)			
(U) Total Cost	0.000	0.000	14.747

(U) **C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) ALQ-131 DRFM Kits	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000		
(U) (BP19) APAF PE 27040F										

(U) **D. Acquisition Strategy**

All major contracts within this project will be awarded through full and open competition.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>07 Operational System Development</b>				<b>0207040F Multi-Platform Electronics</b>					<b>5310 EA Pod DRFM Upgrade</b>			
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
Robins AFB			0.000	0.000		0.000		10.000		0.000	10.000	18.000
Subtotal Product Development			0.000	0.000		0.000		10.000		0.000	10.000	18.000
Remarks:												
(U) <u>Support</u>												
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
Robins AFB			0.000	0.000		0.000		5.000		0.000	5.000	13.000
Subtotal Test & Evaluation			0.000	0.000		0.000		5.000		0.000	5.000	13.000
Remarks:												
(U) <u>Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			0.000	0.000		0.000		15.000		0.000	15.000	31.000

Exhibit R-4, RDT&E Schedule Profile

DATE  
May 2009

BUDGET ACTIVITY  
07 Operational System Development

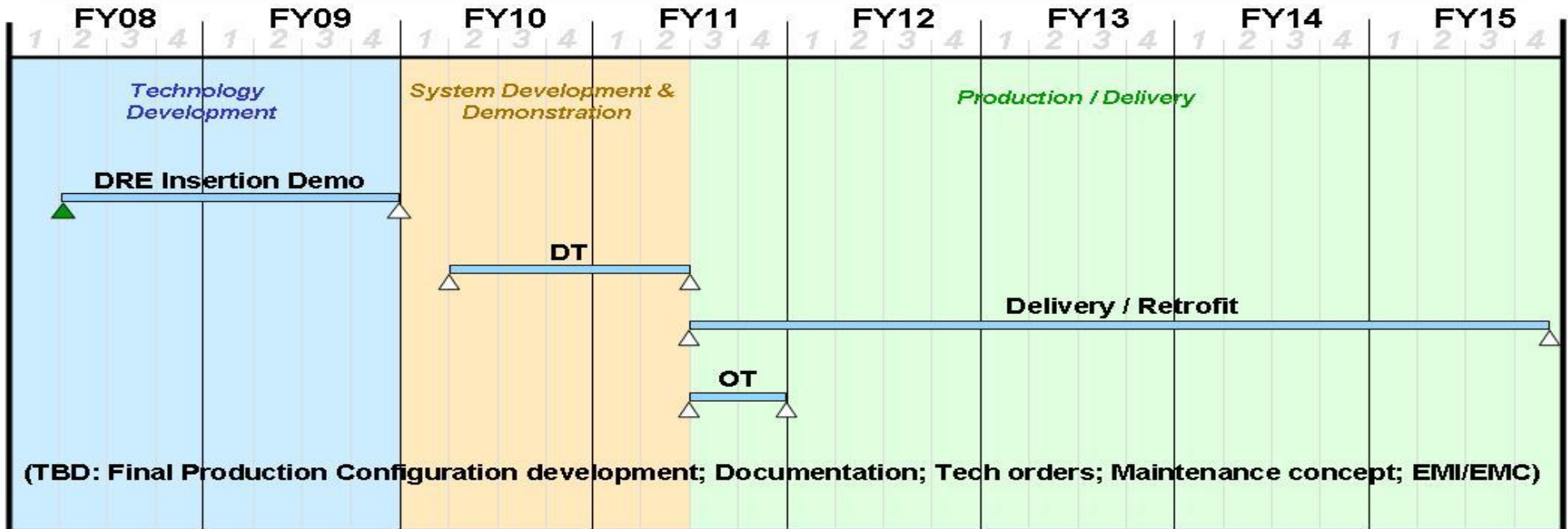
PE NUMBER AND TITLE  
0207040F Multi-Platform Electronics

PROJECT NUMBER AND TITLE  
5310 EA Pod DRFM Upgrade



U.S. AIR FORCE

# ALQ-131 DRFM Upgrade Program Schedule (DRAFT)



DRE: Digital Receiver Exciter

*Integrity - Service - Excellence*



Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207040F Multi-Platform Electronics

PROJECT NUMBER AND TITLE

5310 EA Pod DRFM Upgrade

(U) Schedule Profile

FY 2008

FY 2009

FY 2010

(U) Develomental Testing

2-4Q

(U) Operational Testing

2-4Q

(U) Delivery and Retrofit of Pods Start

2-4Q

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PE NUMBER: 0207131F  
 PE TITLE: A-10 SQUADRONS

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>									<b>DATE</b> <b>May 2009</b>	
<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>					<b>PE NUMBER AND TITLE</b> <b>0207131F A-10 SQUADRONS</b>					
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	6.498	3.989	9.697	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
4809 A-10 Squadrons	6.498	3.989	9.697	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

**(U) A. Mission Description and Budget Item Justification**

The concept of operations for the A-10 requires an agile and survivable weapon system that provides close-air support, combat search and rescue, and special operations support. The high operations tempo maintained by the Expeditionary Air Force requires that each combat platform exhibit the flexibility to effectively perform in a variety of operational roles. To implement these strategies, Combat Air Forces (CAF) must be able to conduct air operations around-the-clock under various weather conditions against numerous enemy threats employing a full spectrum of air defense systems to include countermeasures.

The A-10 is an essential component of successful air operations, and represents a significant percentage of the CAF force structure with 356 aircraft currently in service (plus one ground training aircraft). FY10 PB projects the retirement of three aircraft in FY10 and an additional six in FY13. Candidate user developmental requirements are formally reviewed for incorporation in the yearly aircraft Operational Flight Program (OFP) release cycle, including both hardware and software efforts to fix discovered deficiencies. The weapon system's attributes include excellent low speed maneuverability, high weapons payload, long loiter time, very high tolerance to battle damage, and the lowest cost per flying hour of any CAF fighter. As demonstrated during the Persian Gulf War, it is the Air Force's most effective Close Air Support (CAS) and anti-armor platform.

Results of previously planned developmental and modernization actions provide the A-10 with new combat capabilities that employ a variety of smart weapons, provides improved situational awareness, increased service life to the wing and fuselage/empennage, and enhanced target identification and designation capability. The funds budgeted in the near term will provide updates to the aircraft OFP in Suites 5 and 6 and will address integration of Precision Engagement capabilities deferred from the Suite 3 OFP, for example J-Series and VMF messages, and incorporation of Mode 5. Later in the FYDP, subsequent Suites are projected to incorporate additional functionality such as electronic warfare, cursor on target and evolving targeting pod capabilities.

The FY09 Appropriations Bill provided \$4M for development of a Low Cost Helmet Mounted Cueing System for the A-10.

Ongoing planning and associated activities will take place to prevent and overcome diminishing manufacturing sources and obsolescence issues as required.

This program is in Budget Activity 07 - Operational System Development because it supports a fielded weapon system.

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207131F A-10 SQUADRONS

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	1.951	0.000	3.018
(U) Current PBR/President's Budget	6.498	3.989	9.697
(U) Total Adjustments	4.547	3.989	
(U) Congressional Program Reductions		0.000	
Congressional Rescissions		-0.011	
Congressional Increases		4.000	
Reprogrammings	4.600		
SBIR/STTR Transfer	-0.053		

(U) **Significant Program Changes:**

FY08: \$4.6M payback from within AF resources. Precision Engagement (PE) Operational Flight Programming (OFP) s/w development was underperforming in FY06; \$4.6M was BTR'd to higher AF priorities with a promise to BTR back. This BTR was accomplished during FY08 execution and is enabling digital downlink of 9-line operational direction messages through the IDM (Improved Data Modem) and working off back-logged PE deficiency reports.

FY09: FY09 Appropriations Bill added \$4M for Low Cost Helmet Mounted Cueing System.

FY10 : The FY10 column shows ZBT transfer in of \$7M previously budgeted in the A-10 O&M account to the A-10 RDT&E account. This funding provides for A-10 Operational Flight Program Updates. Provides resources for annual OFP Updates, a two-year annual Update release with alternating start dates -- see accompanying New Start form. The transfers continue across the FYDP at an inflation adjusted level of \$7M/year.

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>				PE NUMBER AND TITLE <b>0207131F A-10 SQUADRONS</b>				PROJECT NUMBER AND TITLE <b>4809 A-10 Squadrons</b>		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
4809 A-10 Squadrons	6.498	3.989	9.697	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

The concept of operations for the A-10 requires an agile and survivable weapon system that provides close-air support, combat search and rescue, and special operations support. The high operations tempo maintained by the Expeditionary Air Force requires that each combat platform exhibit the flexibility to effectively perform in a variety of operational roles. To implement these strategies, Combat Air Forces (CAF) must be able to conduct air operations around-the-clock under various weather conditions against numerous enemy threats employing a full spectrum of air defense systems to include countermeasures.

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Results of previously planned developmental and modernization actions provide the A-10 with new combat capabilities that employ a variety of smart weapons, provides improved situational awareness, increased service life to the wing and fuselage/empennage, and enhanced target identification and designation capability. The funds budgeted in the near term will provide updates to the aircraft OFP in Suites 5 and 6 and will address integration of Precision Engagement capabilities deferred from the Suite 3 OFP, for example J-Series and VMF messages, and incorporation of Mode 5. Later in the FYDP, subsequent Suites are projected to incorporate additional functionality such as electronic warfare, cursor on target and evolving targeting pod capabilities.

The FY09 Appropriations Bill provided \$4M for development of a Low Cost Helmet Mounted Cueing System for the A-10.

Ongoing planning and associated activities will take place to prevent and overcome diminishing manufacturing sources and obsolescence issues as required.

This program is in Budget Activity 07 - Operational System Development because it supports a fielded weapon system.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Precision Engagement (PE) development/integration efforts.	6.498		
(U) Low Cost Helmet Mounted Cueing System		3.989	
(U) Integration of Mode 5 (IFF) Capability into A-10 fleet			2.970
(U) Operational flight program (OFP) development/integration efforts			6.727
(U) Total Cost	6.498	3.989	9.697

**Exhibit R-2a, RDT&E Project Justification**

DATE

**May 2009**

<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0207131F A-10 SQUADRONS</b>	<b>PROJECT NUMBER AND TITLE</b> <b>4809 A-10 Squadrons</b>
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**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) A-10 Squadrons (PE 0207131F) - APAF	145.306	137.893	243.538	0.000	0.000	0.000	0.000			
(U) Fighter Tactical Data Link (PE 0207445F)-RDT&E	2.093									
(U) Fighter Tactical Data Link (PE 0207445F)-APAF	22.657	5.788	8.950	0.000	0.000					

**(U) D. Acquisition Strategy**

Prior to FY09 development efforts were conducted under the A-10 Prime Contract, which was awarded to Lockheed Martin Systems Integration (LMSI) in Dec 1997 through a full-and-open competition. Multiple IDIQ contracts, of various contract types, have been established with LMSI to support these development efforts and will serve as a bridge, until the next A-10 contract has been awarded (which will be known as the A-10 Thunderbolt Life-Cycle Program Support (TLPS) Contract). Subsequent development effort will be provided by this effort which is currently in source selection. This will be the primary contractual vehicle for effort awarded in FY09 and for the next five years or more. The contract will encompass future sustainment, upgrades, and new development efforts required to ensure the A-10 is viable through 2028. The TLPS contract is a full and open competition effort that is designed to provide three fully capable aircraft contractors the opportunity to assist the A-10 platform in meeting its future requirements. The contractual effort is an IDIQ and will utilize multiple funding strategies. The basic contractual period of five years and potential out year options reside within the acquisition strategy. This IDIQ supports sustainment, development, and modernization efforts for the A-10.

UNCLASSIFIED

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE				
<b>07 Operational System Development</b>				<b>0207131F A-10 SQUADRONS</b>				<b>4809 A-10 Squadrons</b>				
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2008 Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date	Cost to Complete	Total Cost	Target Value of Contract
(U) <u>Product Development</u>												
Precision Engagement Development	T&M/CPIF	Lockheed Martin Systems Integration (LMSI) -- Owego NY		2.924	Feb-08						2.924	
Low Cost Helmet Mounted Cueing System	TBD	TBD				3.989					3.989	
Mode 5 (IFF)	TBD	TBD						2.970	Jan-10		2.970	
OPF Development	Various	LMSI -- Owego NY						5.764	Jan-10		5.764	
Subtotal Product Development			0.000	2.924		3.989		8.734		0.000	15.647	0.000
Remarks:												
(U) <u>Support</u>												
USAF (Multiple) PE				3.574	Jan-08			0.963	Jan-10		4.537	
Subtotal Support			0.000	3.574		0.000		0.963		0.000	4.537	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
USAF (40th FTS) PE											0.000	
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:		Test and Evaluation costs are included in the "Support" line										
(U) <u>Management</u>											0.000	
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:		Management costs are included in the "Support" line										
(U) Total Cost			0.000	6.498		3.989		9.697		0.000	20.184	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0207131F A-10 SQUADRONS

PROJECT NUMBER AND TITLE  
4809 A-10 Squadrons

**A-10 OFP Suite Master Schedule (PEC 0207131F)**

	FY 2008				FY 2009				FY 2010				FY 2011				FY 2012	FY 2013	FY 2014	FY 2015
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
<b>Suite 3</b>																				
<b>Suite 5 SDD &amp; Test</b>	RA&D / Development / Integration																			
<b>Suite 5 OFP Fielding</b>																				
<b>Suite 6 SDD &amp; Test</b>	RA&D / Development / Integration / Flight Test																			
<b>Suite 6 OFP Fielding</b>																				
<b>Suite 7 SDD &amp; Test</b>					RA&D / Development / Integration / Test															
<b>Suite 7 OFP Fielding</b>																				
<b>LCHMCS</b>					Integration															
<b>Mode 5 (IFF)</b>									Integration											
<b>Suite 8 SDD &amp; Test</b>									RA&D / Development / Integration											
<b>Suite 8 OFP Fielding</b>																				
<b>Suite 9 SDD &amp; Test</b>																				
<b>Suite 9 OFP Fielding</b>																				
<b>Suite 10 SDD &amp; Test</b>																				
<b>Suite 10 OFP Fielding</b>																				
<b>Suites 11 and beyond field on a yearly basis similar to Suite 10</b>																				



Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0207131F A-10 SQUADRONS	PROJECT NUMBER AND TITLE 4809 A-10 Squadrons		
		<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) <b>Schedule Profile</b>				
(U) Precision Engagement Developmental Test / Operational Test		1-3Q		
(U) Precision Engagement Production / Installation		1-4Q	1-4Q	1-4Q
(U) Low Cost Helmet Mounted Cueing System			3-4Q	1Q
(U) Suite 5 OFP System Design, Development & Flight Test		1-4Q	1-3Q	
(U) Suite 5 OFP Fields			3Q	
(U) Suite 6 OFP System Design, Development & Flight Test		1-4Q	1-4Q	1-3Q
(U) Suite 6 OFP Fields				3Q
(U) Suite 7 OFP System Design, Development & Flight Test		4Q	1-4Q	1-4Q
(U) Suite 7 Fields				
(U) Mode 5 (IFF) Integration				2-4Q
(U) Suite 8 OFP System Design, Development & Flight Test			4Q	1-4Q

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PE NUMBER: 0207133F  
 PE TITLE: F-16 SQUADRONS

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0207133F F-16 SQUADRONS</b>
--	--

Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	76.816	126.834	141.020	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
2671 F-16 Squadrons	76.816	126.834	141.020	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

FY 2008 funding total includes \$7.096M supplemental funding.

**(U) A. Mission Description and Budget Item Justification**

The F-16 Fighting Falcon is the world's premier multi-mission fighter. It is a fixed-wing, high performance, single-engine fighter aircraft. In its 30-year history, the F-16 has proven itself in combat in a variety of air-to-air and air-to-surface missions such as close air support, combat air patrol, forward air control, battle air interdiction (day/night and all-weather) and suppression of enemy air defenses (SEAD)/Destruction of enemy air defenses (DEAD). Also during these years the aircraft has evolved in its capabilities to exploit the advances made in computer, avionics systems, engine, and structures technologies. The F-16 has been selected by more than 20 air forces around the world and foreign military sales production continues in the 21st century. The 312th Aeronautical Systems Group (312 AESG, the F-16 Development Management Office) develops, integrates, and qualifies systems to enhance the overall performance of the F-16 mission.

Enhancements which are being or will be developed during the FYDP include:

- a. The Mode 5 program for Blk 40/50 aircraft provides secure, encrypted IFF capability. Modifications to the Air-to Air Interrogator (AAI) system through integration of a Mode 5 capable Combined Interrogator/Transponder (CIT) capability will field with M6+ OFP.
- b. The F-16 development efforts are complemented by comprehensive operational flight program (OFP) upgrades including Hardware and Group A development associated with OFP software candidates. Integration efforts includes software upgrades to the ALR-56M Radar Warning Receiver, manned fighter reconnaissance capabilities and Joint Helmet Mounted Cueing System (JHMCS) which allows the pilot to designate and shoot targets off-bore sight without maneuvering the aircraft. Advanced weapons integration moves under the OFP updates line starting in FY08 and includes Joint Air-to-Surface Stand-off Missile (JASSM) and Joint Direct Attack Munition (JDAM, Laser JDAM), Joint Stand-off Weapon (JSOW), Wind Corrected Munition Dispenser (WCMD), Small Diameter Bomb (SDB), AMRAAM, AIM-9X and updates to existing weapons into the F-16. Integration with the high angle off-bore sight AIM-9X missile provides the F-16 with enhanced first-look/first-shoot/first-kill advantage in the "dogfight" arena. Weapons integration also includes tasks such as performing risk reduction activities on advanced weapon integration, developing and integrating advanced racks, pylons, adapters, and the Universal Armament Interface, and ensuring nuclear surety, safety and compatibility. Link 16 provides the F-16s with a secure, jam resistant, high-capacity data communications link with other combat aircraft, airborne control aircraft, and ground control centers. Ongoing Embedded GPS/INS improvements provide improved targeting capability to take full advantage of GPS-aided precision weapons to conduct evolving missions. Mission Planning system integration and ground collision avoidance capability development and integration efforts are included in M-tapes funding. Starting with M6/M6+ OFP, LM Aero will start transition activities for OFP workload and maintenance of M-series OFP tapes to OO-ALC and assumes a "leader/follower" transition where LM Aero will produce M6/M6+ OFP as OO-ALC builds up capability (personnel, special test equipment, OFP development tools & processes, and training). OO-ALC will have software development responsibility for the next M-series OFP program (M7+). During transition, both Lockheed and Ogden may have some concurrent software development capabilities both in terms of special test equipment and personnel since OFP tape developments overlap. This funding is broken out through FY09 for clarity to separate these transition efforts from OFP Development.

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

May 2009

## BUDGET ACTIVITY

07 Operational System Development

## PE NUMBER AND TITLE

0207133F F-16 SQUADRONS

c. EMD Hardware/Advanced Capability Improvements. EMD HW provides funding to develop, test, and qualify aircraft subsystems replaced or modified due to requirements changes, Pre-Planned Product Improvements (P3I) and Diminishing Manufacturing Source (DMS). The approach to contracting varies by individual project. These hardware improvements include but are not limited to flight systems, improved navigation, mux architecture, MMC upgrade, Embedded GPS/INS, Blk 40 Air-to-Air Interrogator (AAI), digital video recorder, Advanced Data Transfer Equipment (ADTE), display upgrades, radio and communication studies, Electronic Warfare (EW), CAS Data Link and other subsystems. Advanced Capability Improvements includes software integration, sensor upgrades, enhanced self-protection/electronic protection (EP), 4th/5th gen fighter network communications, lab and/or on-aircraft evaluation of potential subsystem changes/capability improvements on the F-16 as well as establishment of associated requirement specification changes. These capability improvements also fund integration of pods including updates and tech order changes (SNIPER, LANTIRN, HTS, LITENING, THUNDER POD, Theatre Air Reconnaissance System (TARS/RECCE) etc. Note: The MMC upgrade and Embedded GPS/INS are broken out for clarity.

d. The F16 Secure Line of Sight (SLOS) communication mod is in response to CENTCOM Urgent Operational Need for secure line-of-sight/single channel ground and airborne radio system (SINCGARS) communication capabilities which can be upgraded to secure beyond line of sight (BLOS) capability in the future. BLOS (for Blk 30/32) received an OMNIBUS reprogramming and funding for Blk 40-52 BLOS development/integration was provided in a supplemental bill. This investment initiates development of SATCOM BLOS capability to communicate with many rotary wing and ground maneuver units in the theater of operations.

e. F-16 ATS Development - Develop capability of the Versatile Automatic Test System (VDATS) for F-16 application. The Integrated Life Cycle Management (ILCM) executive agent for Automatic Test Systems (ATS) is focused on reducing weapon system unique ATS through replacement with a Common Versatile ATS tester that can perform similar test across multiple weapons platforms.

Since the development activities in this PE support an operational aircraft, these development activities are funded in the operational system development budget activity 7.

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	70.172	123.979	119.900
(U) Current PBR/President's Budget	76.816	126.834	141.020
(U) Total Adjustments	6.644	2.855	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.345	
Congressional Increases	7.096	3.200	
Reprogrammings	1.500		
SBIR/STTR Transfer	-1.952		

(U) **Significant Program Changes:**

FY 2008 funding total includes \$7.096M supplemental funding.

FY09 adds \$3.2M for Thunder Pod Integration Congressional Plus-up

FY09 pending \$4.2M being reprogrammed (\$3.1M for SIBR and \$1.1M for other higher priority requirements).

**Exhibit R-2, RDT&E Budget Item Justification**

DATE

**May 2009**

BUDGET ACTIVITY

**07 Operational System Development**

PE NUMBER AND TITLE

**0207133F F-16 SQUADRONS**

FY10: includes \$4.8M for Automatic Ground Collision Avoidance System (Auto GCAS)

FY10: adds \$9.5M to complete Mode 5 and BLOS Integration

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>				PE NUMBER AND TITLE <b>0207133F F-16 SQUADRONS</b>				PROJECT NUMBER AND TITLE <b>2671 F-16 Squadrons</b>			
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total	
2671 F-16 Squadrons	76.816	126.834	141.020	0.000	0.000	0.000	0.000	0.000	Continuing	TBD	
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0			

**(U) A. Mission Description and Budget Item Justification**

The F-16 Fighting Falcon is the world's premier multi-mission fighter. It is a fixed-wing, high performance, single-engine fighter aircraft. In its 30-year history, the F-16 has proven itself in combat in a variety of air-to-air and air-to-surface missions such as close air support, combat air patrol, forward air control, battle air interdiction (day/night and all-weather) and suppression of enemy air defenses (SEAD)/Destruction of enemy air defenses (DEAD). Also during these years the aircraft has evolved in its capabilities to exploit the advances made in computer, avionics systems, engine, and structures technologies. The F-16 has been selected by more than 20 air forces around the world and foreign military sales production continues in the 21st century. The 312th Aeronautical Systems Group (312 AESG, the F-16 Development Management Office) develops, integrates, and qualifies systems to enhance the overall performance of the F-16 mission.

Enhancements which are being or will be developed during the FYDP include:

- a. The Mode 5 program for Blk 40/50 aircraft provides secure, encrypted IFF capability. Modifications to the Air-to Air Interrogator (AAI) system through integration of a Mode 5 capable Combined Interrogator/Transponder (CIT) capability will field with M6+ OFP.
- b. The F-16 development efforts are complemented by comprehensive operational flight program (OFP) upgrades including Hardware and Group A development associated with OFP software candidates. Integration efforts includes software upgrades to the ALR-56M Radar Warning Receiver, manned fighter reconnaissance capabilities and Joint Helmet Mounted Cueing System (JHMCS) which allows the pilot to designate and shoot targets off-bore sight without maneuvering the aircraft. Advanced weapons integration moves under the OFP updates line starting in FY08 and includes Joint Air-to-Surface Stand-off Missile (JASSM) and Joint Direct Attack Munition (JDAM, Laser JDAM), Joint Stand-off Weapon (JSOW), Wind Corrected Munition Dispenser (WCMD), Small Diameter Bomb (SDB), AMRAAM, AIM-9X and updates to existing weapons into the F-16. Integration with the high angle off-bore sight AIM-9X missile provides the F-16 with enhanced first-look/first-shoot/first-kill advantage in the "dogfight" arena. Weapons integration also includes tasks such as performing risk reduction activities on advanced weapon integration, developing and integrating advanced racks, pylons, adapters, and the Universal Armament Interface, and ensuring nuclear surety, safety and compatibility. Link 16 provides the F-16s with a secure, jam resistant, high-capacity data communications link with other combat aircraft, airborne control aircraft, and ground control centers. Ongoing Embedded GPS/INS improvements provide improved targeting capability to take full advantage of GPS-aided precision weapons to conduct evolving missions. Mission Planning system integration and ground collision avoidance capability development and integration efforts are included in M-tapes funding. Starting with M6/M6+ OFP, LM Aero will start transition activities for OFP workload and maintenance of M-series OFP tapes to OO-ALC and assumes a "leader/follower" transition where LM Aero will produce M6/M6+ OFP as OO-ALC builds up capability (personnel, special test equipment, OFP development tools & processes, and training). OO-ALC will have software development responsibility for the next M-series OFP program (M7+). During transition, both Lockheed and Ogden may have some concurrent software development capabilities both in terms of special test equipment and personnel since OFP tape developments overlap. This funding is broken out through FY09 for clarity to separate these transition efforts from OFP Development.
- c. EMD Hardware/Advanced Capability Improvements. EMD HW provides funding to develop, test, and qualify aircraft subsystems replaced or modified due to requirements changes, Pre-Planned Product Improvements (P3I) and Diminishing Manufacturing Source (DMS). The approach to contracting varies by individual project. These hardware improvements include but are not limited to flight systems, improved navigation, mux architecture, MMC upgrade, Embedded GPS/INS, Blk

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

May 2009

BUDGET ACTIVITY

**07 Operational System Development**

PE NUMBER AND TITLE

**0207133F F-16 SQUADRONS**

PROJECT NUMBER AND TITLE

**2671 F-16 Squadrons**

40 Air-to-Air Interrogator (AAI), digital video recorder, Advanced Data Transfer Equipment (ADTE), display upgrades, radio and communication studies, Electronic Warfare (EW), CAS Data Link and other subsystems. Advanced Capability Improvements includes software integration, sensor upgrades, enhanced self-protection/electronic protection (EP), 4th/5th gen fighter network communications, lab and/or on-aircraft evaluation of potential subsystem changes/capability improvements on the F-16 as well as establishment of associated requirement specification changes. These capability improvements also fund integration of pods including updates and tech order changes (SNIPER, LANTIRN, HTS, LITENING, THUNDER POD, Theatre Air Reconnaissance System (TARS/RECCE) etc. Note: The MMC upgrade and Embedded GPS/INS are broken out for clarity.

d. The F16 Secure Line of Sight (SLOS) communication mod is in response to CENTCOM Urgent Operational Need for secure line-of-sight/single channel ground and airborne radio system (SINCGARS) communication capabilities which can be upgraded to secure beyond line of sight (BLOS) capability in the future. BLOS (for Blk 30/32) received an OMNIBUS reprogramming and funding for Blk 40-52 BLOS development/integration was provided in a supplemental bill. This investment initiates development of SATCOM BLOS capability to communicate with many rotary wing and ground maneuver units in the theater of operations.

e. F-16 ATS Development - Develop capability of the Versatile Automatic Test System (VDATS) for F-16 application. The Integrated Life Cycle Management (ILCM) executive agent for Automatic Test Systems (ATS) is focused on reducing weapon system unique ATS through replacement with a Common Versatile ATS tester that can perform similar test across multiple weapons platforms.

Since the development activities in this PE support an operational aircraft, these development activities are funded in the operational system development budget activity 7.

<b>(U) B. Accomplishments/Planned Program (\$ in Millions)</b>	<b><u>FY 2008</u></b>	<b><u>FY 2009</u></b>	<b><u>FY 2010</u></b>
(U) Continue OFP Updates	45.735	76.408	104.193
(U) Continue Flight Tests DT&E	19.907	23.600	26.827
(U) Mode 5 IFF for CAF Aircraft	0.100	9.790	8.000
(U) MMC Upgrade Development	1.544		
(U) EMD HW/Advanced Capabilities Improvements		0.600	0.500
(U) Embedded GPS/INS Development	0.008		
(U) Secure Line of Sight (SLOS) integration	0.100		
(U) OFP Transition	2.293	8.435	
(U) Beyond Line of Sight (BLOS) development/integration	7.129	0.600	1.500
(U) \$4.2MPending Reprogramming		4.201	
(U) Plus up/Thunder Pod		3.200	
(U) Automatic Test System (ATS) Development			
(U) Total Cost	76.816	126.834	141.020

Exhibit R-2a, RDT&E Project Justification

DATE

May 2009

BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0207133F F-16 SQUADRONS</b>	PROJECT NUMBER AND TITLE <b>2671 F-16 Squadrons</b>
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(U) **C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Aircraft Procurement Line Item 32, F-16 Mods	383.559	308.556	224.642							TBD
(U) Aircraft Procurement , Line Item 80, Post Production Support	8.464	13.586	19.951							TBD

(U) **D. Acquisition Strategy**

RDT&E funds will primarily be executed in developing improved capability, maintenance and safety mods. Operational Flight Program (OFP) software will be continuously updated to complement mod development efforts. OFP transition activities to OO-ALC started in FY06 as part of the "follower/leader" effort with software development starting with M7+. The EMD Hardware Development line provides funding to develop, test, and qualify aircraft subsystems upgrades, communication upgrades and Diminishing Manufacturing Source (DMS). The approach to contracting varies by individual project. Lockheed Martin Aeronautics Company (LM Aero) is the prime contractor on all systems except the General Electric Engines and the Pratt & Whitney Engines. Contract types are T&M, CPIF, CPFF and FFP.



UNCLASSIFIED

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>07 Operational System Development</b>				<b>0207133F F-16 SQUADRONS</b>					<b>2671 F-16 Squadrons</b>			
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
OFF Updates	CPIF, T&M	LM Aero	58.079	45.735	Oct-07	76.408	Oct-08	104.193	Oct-09	Continuing	TBD	
OFF Transition	T&M, Organic	LM Aero, OO-ALC	9.996	2.293	Oct-07	8.435	Oct-08			Continuing	TBD	
Mode 5 IFF for CAF Aircraft	CPIF	LM Aero	0.000	0.100	Feb-09	9.790	Jun-09	8.000	Jan-10	Continuing	TBD	
MMC 7000A Upgrade Development	CPIF	LM Aero	6.732	1.544	Dec-07						8.276	
EMD HW/Advanced Capabilities Improvements	T&M, FFP	LM Aero/AFRL/V A	2.542			0.600	Feb-09	0.500	Mar-10	Continuing	TBD	
Embedded GPS/INS Development	FFP	Northrop Grumman	4.138	0.008	Dec-07						4.146	
BLOS development/integration	FFP/CPIF, T&M	LM Aero	7.152	7.129	Feb-09	0.600	Jul-09	1.500	Oct-09		16.381	
SLOS development/integration Plus up (Thunder Pods)	FFP, CPIF Organic	LM Aero, OO-ALC	4.634	0.100	Sep-08	3.200	Aug-09				4.734	
\$4.2MPending Reprogramming		SAF/FM	0.996			4.201	Jun-09				4.201	
Subtotal Product Development			94.269	56.909		103.234		114.193		Continuing	TBD	0.000
Remarks:												
(U) <u>Support</u>												0.000
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
Flight Tests	T&M/CPFF, Organic	LM Aero/ Edwards AFB	27.051	19.907	Dec-07	23.600	Oct-08	26.827	Nov-09	Continuing	TBD	
Subtotal Test & Evaluation			27.051	19.907		23.600		26.827		Continuing	TBD	0.000
Remarks:												
(U) <u>Management</u>												0.000
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Rescission</u>												
(U) Total Cost			121.320	76.816		126.834		141.020		Continuing	TBD	0.000
Remarks:												

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY  
07 Operational System Development

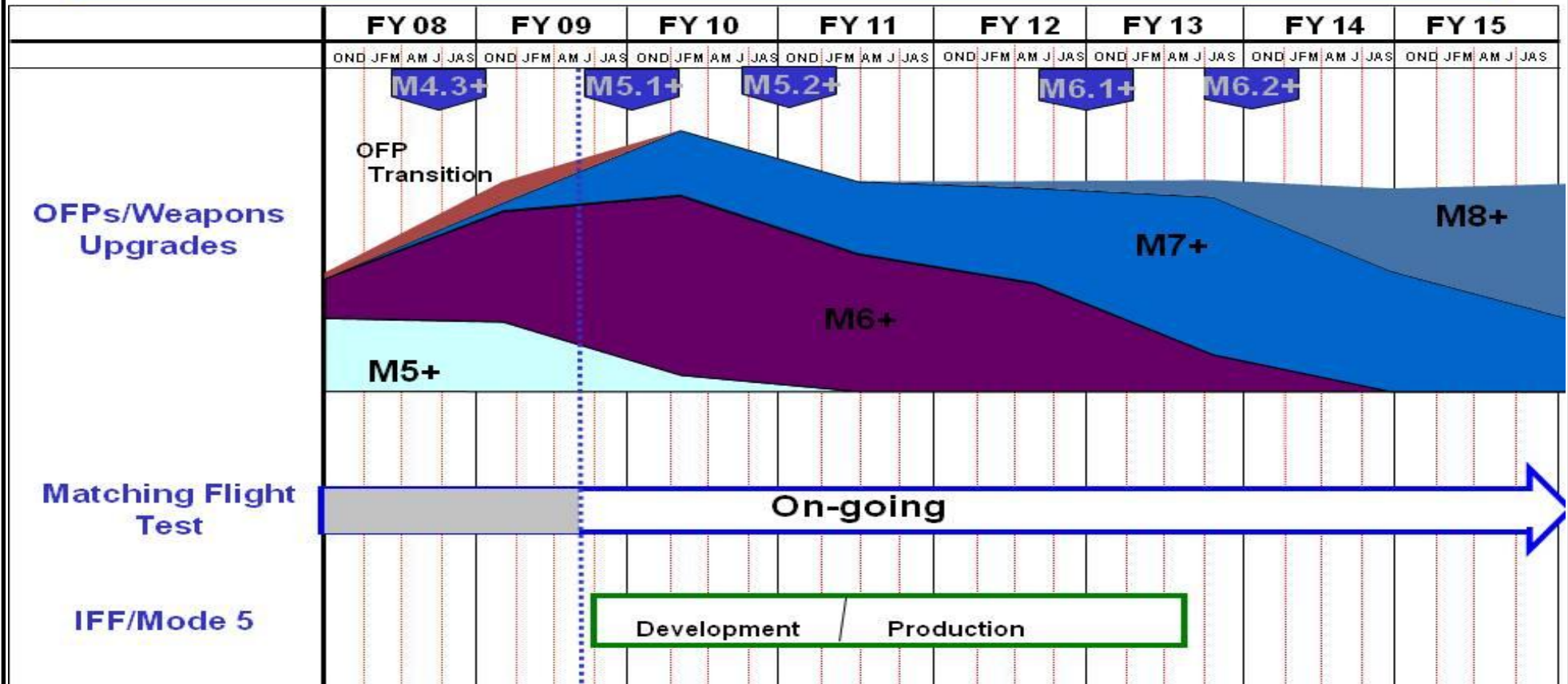
PE NUMBER AND TITLE  
0207133F F-16 SQUADRONS

PROJECT NUMBER AND TITLE  
2671 F-16 Squadrons



# F-16 Program Schedule - USAF

U.S. AIR FORCE



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**Exhibit R-4a, RDT&E Schedule Detail**

DATE

**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0207133F F-16 SQUADRONS</b>	PROJECT NUMBER AND TITLE <b>2671 F-16 Squadrons</b>
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(U) <u>Schedule Profile</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Flight Test Continuous	1-4Q	1-4Q	1-4Q
(U) OFP Development, continuous	1-4Q	1-4Q	1-4Q
(U) OFP Transition activities	1-4Q	1-4Q	
(U) Mode 5 IFF for CAF Aircraft		3-4Q	1-4Q
(U) EMD Hardware (contiuous)	1-4Q	1-4Q	1-4Q
(U) Embedded GPS/INS Development	1-4Q		
(U) MMC 7000A Development	1-4Q		
(U) BLOS - FY08 Supplemental, FY10 Pus up	1-4Q	1-4Q	1-3Q
(U) SLOS - development/integration	4Q		

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PE NUMBER: 0207134F  
 PE TITLE: F-15E SQUADRONS

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0207134F F-15E SQUADRONS</b>
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	114.865	198.872	311.167	0.000	0.000	0.000	0.000	0.000	0.000	TBD
0131 Initial Operational Test and Evaluation	114.865	198.872	311.167	0.000	0.000	0.000	0.000	0.000	0.000	TBD

The F-15 program has one FY 2010 new start: F-15C/D Infrared Search and Track (IRST) develops and procures a new air-to-air sensor.

**(U) A. Mission Description and Budget Item Justification**

The F-15 is the most versatile fighter in the world today. The F-15A-D continues to provide air superiority with an undefeated and unmatched aerial combat record. The F-15E retains this air superiority capability and adds systems, such as advanced imaging and targeting systems, to meet the requirement for all-weather, deep penetration, and night/under-the-weather, air-to-surface attack. Configured with conformal fuel tanks (CFTs), the F-15E deploys worldwide with minimal tanker support and arrives combat-ready. A mainstay in the War on Terror both domestically and abroad, upgrades to the F-15 (avionics, armament, airframe, and engines) are critical to maintaining combat viability (lethality, survivability, and supportability).

Projected to remain in service past 2030, avionics modernization is key to long-term weapon system viability. This modernization is built on a foundation of technical studies (both internal to the Air Force and through outside contractors), forestalling obsolescence, exploiting proven technological advances, and leveraging new technology. Major avionics upgrades center around radar modernization (both hardware and software upgrades) and the exploitation of enhanced capability via wideband radome, precision timing, data delivery and processing technology, precision registration systems, cockpit Head Up Display (HUD) and instrumentation digitization and modernization, central computer processing power increases, and digital mission event recording systems. Funds are also used, as required, to resolve Diminishing Manufacturing Sources and Material Shortage (DMSMS) issues.

The proliferation of fourth generation enemy aircraft and sophisticated "double-digit" anti-aircraft missile systems pose a significant threat to F-15 survivability. A fully integrated electronic warfare suite holds the promise of providing survivability as well as expanded electronic attack capability.

Nearly all improvements are linked to an aircraft operational flight program update schedule that works to integrate new capabilities with the airframe. These updates are a responsive way to increase the offensive and defensive capability and survivability of the F-15. Given the comprehensiveness of these changes, significant flight test will be required. Incorporation of corresponding spiral and/or phased technology/equipment improvements that include support equipment, mission planning systems, and training device upgrades will improve performance, supportability, and line replaceable unit (LRU) throughput.

The F-15E program, PE 0207134F, is assigned budget activity (BA) code 07 because this developmental work upgrades an existing weapons system.

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207134F F-15E SQUADRONS

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	114.519	184.213	278.588
(U) Current PBR/President's Budget	114.865	198.872	311.167
(U) Total Adjustments	0.346	14.659	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.541	
Congressional Increases		15.200	
Reprogrammings	3.500		
SBIR/STTR Transfer	-3.154		

(U) **Significant Program Changes:**

In FY 2008 the Air Force reprogrammed \$3.5 million for Operational Flight Program (OFP) Suite 6 cost increases.

In FY 2009 Congress added \$12.0 million for an APG-63(V)3 classified demonstration, and \$3.1 million to continue the ANG effort to identify a digital off-the-shelf replacement for the ALR-56C radar warning receiver.

The increase in FY 2009 was due to \$77.6 million to begin development of the F-15E Radar Modernization Program (RMP). In FY 2010, RMP development will receive \$148.3 million, and development will start for IRST. The F-15C/D IRST program is allocated \$35.0 million in FY 2010 to develop an infrared spectrum air-to-air search and track capability to complement the existing radar.

CPMP development of an upgraded mission computer for the F-15E started in FY 2009 as part of the RMP program. In FY 2010, CPMP has been separated from RMP and is a stand-alone development program. CPMP will be used by other systems and weapons in addition to RMP, and this separation will allow the Air Force to field CPMP faster.

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

May 2009

BUDGET ACTIVITY		PE NUMBER AND TITLE						PROJECT NUMBER AND TITLE		
07 Operational System Development		0207134F F-15E SQUADRONS						0131 Initial Operational Test and Evaluation		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
0131 Initial Operational Test and Evaluation	114.865	198.872	311.167	0.000	0.000	0.000	0.000	0.000	0.000	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) **A. Mission Description and Budget Item Justification**

The F-15 is the most versatile fighter in the world today. The F-15A-D continues to provide air superiority with an undefeated and unmatched aerial combat record. The F-15E retains this air superiority capability and adds systems, such as advanced imaging and targeting systems, to meet the requirement for all-weather, deep penetration, and night/under-the-weather, air-to-surface attack. Configured with conformal fuel tanks (CFTs), the F-15E deploys worldwide with minimal tanker support and arrives combat-ready. A mainstay in the War on Terror both domestically and abroad, upgrades to the F-15 (avionics, armament, airframe, and engines) are critical to maintaining combat viability (lethality, survivability, and supportability).

Projected to remain in service past 2030, avionics modernization is key to long-term weapon system viability. This modernization is built on a foundation of technical studies (both internal to the Air Force and through outside contractors), forestalling obsolescence, exploiting proven technological advances, and leveraging new technology. Major avionics upgrades center around radar modernization (both hardware and software upgrades) and the exploitation of enhanced capability via wideband radome, precision timing, data delivery and processing technology, precision registration systems, cockpit Head Up Display (HUD) and instrumentation digitization and modernization, central computer processing power increases, and digital mission event recording systems. Funds are also used, as required, to resolve Diminishing Manufacturing Sources and Material Shortage (DMSMS) issues.

The proliferation of fourth generation enemy aircraft and sophisticated "double-digit" anti-aircraft missile systems pose a significant threat to F-15 survivability. A fully integrated electronic warfare suite holds the promise of providing survivability as well as expanded electronic attack capability.

Nearly all improvements are linked to an aircraft operational flight program update schedule that works to integrate new capabilities with the airframe. These updates are a responsive way to increase the offensive and defensive capability and survivability of the F-15. Given the comprehensiveness of these changes, significant flight test will be required. Incorporation of corresponding spiral and/or phased technology/equipment improvements that include support equipment, mission planning systems, and training device upgrades will improve performance, supportability, and line replaceable unit (LRU) throughput.

The F-15E program, PE 0207134F, is assigned budget activity (BA) code 07 because this developmental work upgrades an existing weapons system.

(U) **B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Operational Flight Program (OFP) Development Efforts	63.727	74.350	78.723
(U) Flight testing of improvements initiated in prior years.	11.087	19.211	19.679
(U) Development of Tactical Electronic Warfare System (TEWS) Intermediate Support System (TISS) Technology Insertion Program (TTIP)	2.273	2.339	2.217
(U) Mode 5 Development Efforts	11.669	4.268	
(U) F-15C/D APG-63(V)3 Radar Block Upgrade	8.117	11.694	
(U) F-15E Radar Modernization Program (RMP)	9.556	74.136	148.269

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Project 0131

Exhibit R-2a (PE 0207134F)

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<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0207134F F-15E SQUADRONS</b>	<b>PROJECT NUMBER AND TITLE</b> <b>0131 Initial Operational Test and Evaluation</b>
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<b>(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) F-15 RWR Upgrade	5.411	3.065	
(U) F-15C/D IRST			34.517
(U) F-15E CPMP (previously ADCP II, part of RMP)		3.500	21.598
(U) Mission Support, Other Government Cost	3.025	3.909	6.164
(U) Flight Data Recorder		2.400	
(U) Total Cost	114.865	198.872	311.167

<b>(U) <u>C. Other Program Funding Summary (\$ in Millions)</u></b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Other APPN:										
(U) Aircraft Procurement										
F-15A-E (PEs 0207130F and 0207134F) [BP 11]	186.972	53.672	91.939							
(U) Aircraft Procurement F-15E (PE 0809731F) Training Support to Units [BP11]			0.982							
(U) Total BP 11	186.972	53.672	92.921							
(U) Aircraft Replacement F-15E (PEs 0207130F and 0207134F) Support Equipment [BP 12]	11.473	13.165	12.769							
(U) Total BP 12	11.473	13.165	12.769							
(U) Aircraft Procurement F-15A-E (PE 0207134F) [BP 13]	5.577	20.134	15.744							
(U) Total BP 13	5.577	20.134	15.744							
(U) Aircraft Procurement F-15E (PEs 0207130F and 0207134F) Initial Mod Spares [BP 16]	1.473	2.235	1.881							
(U) Total BP 16	1.473	2.235	1.881							

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Project 0131

Exhibit R-2a (PE 0207134F)



## Exhibit R-2a, RDT&amp;E Project Justification

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207134F F-15E SQUADRONS

PROJECT NUMBER AND TITLE

0131 Initial Operational Test and  
Evaluation(U) **D. Acquisition Strategy**

Program is a continuation of effort which includes the development of all F-15 models. Funds are executed organically in support of equipment improvement, study, analysis, and test.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE				
<b>07 Operational System Development</b>				<b>0207134F F-15E SQUADRONS</b>				<b>0131 Initial Operational Test and Evaluation</b>				
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2008 Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date	Cost to Complete	Total Cost	Target Value of Contract
(U) <u>Product Development</u>												
OFP Suite 4/5/6/7/8 Development and Test	CPAF	Boeing, St Louis	63.158	63.727	Dec-07	74.350	Dec-08	78.723	Dec-09		279.958	
TISS TTIP	CPFF	Boeing, St. Louis	2.273	2.273	Jan-08	2.339	Dec-08	2.217	Dec-09		9.102	
F-15C/D APG-63(V)3 Radar Block Upgrade	CPFF	Boeing, St Louis	8.117	8.117	Mar-08	11.694	Mar-09				27.928	
F-15E RMP	CPOIF	Boeing, St Louis	9.556	9.556	Sep-08	74.136	Oct-08	148.269	Oct-09		241.517	
Mode 5	CPAF	Boeing, St. Louis	11.669	11.669	Dec-07	4.268	Dec-08				27.606	
F-15 RWR Upgrade	CPFF	Boeing St. Louis	0.000	5.411	Oct-08	3.065	Feb-09				8.476	
F-15C/D IRST	CPFF	Boeing St. Louis						34.517	Dec-09		34.517	
F-15E CPMP (formerly ADCP II, part of RMP)	CPFF	Boeing St. Louis				3.500	Oct-08	21.598	Dec-09		25.098	
F-15 Flight Data Recorder	CPFF	Boeing St. Louis				2.400	Oct-09				2.400	
Subtotal Product Development			94.773	100.753		175.752		285.324		0.000	656.602	0.000
Remarks:												
(U) <u>Support</u> (Msn Spt) Misc.		Wright-Patters on AFB, OH	3.025	3.025	Feb-08	3.909	Feb-09	6.164	Feb-10		16.123	
Subtotal Support			3.025	3.025		3.909		6.164		0.000	16.123	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
Boeing (Contractor Test Team)	CPFF	Boeing, St Louis	9.685	9.387	Dec-07	14.211	Dec-08	13.679	Dec-09		46.962	
Edwards	PO	Edwards AFB, CA	0.000								0.000	
Eglin (Flt Test)	PO	Eglin AFB, FL	1.158	1.700	Jun-08	5.000	Jun-09	6.000	Jun-10		13.858	
Subtotal Test & Evaluation			10.843	11.087		19.211		19.679		0.000	60.820	0.000
Remarks:												
(U) <u>Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			108.641	114.865		198.872		311.167		0.000	733.545	0.000

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Project 0131

Exhibit R-3 (PE 0207134F)

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0207134F F-15E SQUADRONS

PROJECT NUMBER AND TITLE  
0131 Initial Operational Test and Evaluation



U.S. AIR FORCE

# F-15C/D Modifications



*Dominant Air Power: Design For Tomorrow... Deliver Today*

Program	Prior	FY2008	FY2009	FY2010	Quantity
ACU		Development		Production	232
APG-63(V)3		Development		15 Installation	158
Mode 5				Production	250
IRST				Development	Gp A:100 Pods:55
DVR				Production	238
Secondary Pwr System			Development	Production	176
MSOGS			Development	Production	176
Flight Data Recorder			Development	Production	238
		Development		Production	Installation

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0207134F F-15E SQUADRONS

PROJECT NUMBER AND TITLE  
0131 Initial Operational Test and Evaluation



# F-15E Modifications



U.S. AIR FORCE

*Dominant Air Power: Design For Tomorrow... Deliver Today*

Program	Prior	FY2008	FY2009				FY2010	Quantity	
F-15E RMP (AESA Radar)								224	
TISS TIP	29	6						36	
ACU								198	
ADCP	90	81	14	16	15	5	3	224	
JHMCS - Front Seat				29	27	24	72	164	
Mode 5								224	
BLOS/SLOS SATCOM								180	
CPMP								224	
DVRS							112	224	
Secondary Pwr System								224	
Flight Data Recorder								224	
			Development			Production		Installation	

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Exhibit R-4 (PE 0207134F)

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**Exhibit R-4a, RDT&E Schedule Detail**

DATE

**May 2009**

BUDGET ACTIVITY

**07 Operational System Development**

PE NUMBER AND TITLE

**0207134F F-15E SQUADRONS**

PROJECT NUMBER AND TITLE

**0131 Initial Operational Test and Evaluation**

(U) <u>Schedule Profile</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) OFP Suite 6 Phase II - Complete			1Q
(U) OFP Suite 6 Phase II Flight Test - Start	1Q		
(U) OFP Suite 6 Phase II Flight Test - Complete			1Q
(U) Mode 5 - Complete			1Q
(U) ACU - Complete		4Q	
(U) F-15 RMP SDD - Start		1Q	
(U) OFP Suite 7E Phase 1 / Phase II - Start		2Q	
(U) F-15C/D IRST Start			1Q

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PE NUMBER: 0207136F  
 PE TITLE: Manned Destructive Suppression

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0207136F Manned Destructive Suppression</b>
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.500	5.570	10.748	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
4595 F-16 HARM Targeting System	0.500	5.570	10.748	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

**(U) A. Mission Description and Budget Item Justification**

The overall Manned Destructive Suppression (MDS) program funds the development, procurement, and sustainment of the Air Force's Suppression of Enemy Air Defenses (SEAD) and Destruction of Enemy Air Defenses (DEAD) capabilities. The F-16 HARM Targeting System (HTS) is currently the only programmed reactive SEAD capability and enables targeting the HARM missile in its most lethal 'range known' mode. The program provides F-16 Block 50/52 aircraft with the ability to employ the AN/ASQ-213 Pod. With the introduction of HTS Revision 7 (HTS R7), the AN/ASQ-213 Pod has a precision geolocation capability to target Precision Guided Munitions (PGMs) to destroy fixed and mobile enemy air defense elements, and enables the F-16 to carry both an AN/ASQ-213 HTS R7 Pod and an Advanced Targeting Pod (ATP), by relocating HTS R7 pod to the aircraft's left inlet hard point. HTS R7 completed System Development and Demonstration (SDD) in FY07 following operational testing certification and fielding on the first F-16 Block 50/52 squadron in May 07. These improvements represent the Air Force's near-term solution for reactive time critical targeting for DEAD until this mission can be transferred to F-35 or a yet to be defined system. HTS R7 precision targeting coordinates will be available to all Joint Forces via Link-16. This RDT&E effort continues preplanned product improvements (P3I) and applies technologies similar to those demonstrated in the Advanced Tactical Targeting Technologies (AT3) program and HTS R7 development. An on-going HTS R7 follow-on study was concluded in early FY09 to perform investigations, studies, risk reduction and pre-planning activities for P3I and also to address near-term deficiencies deferred from HTS R7 development. In FY 09, HTS Revision 7 (HTS R7) software upgrade (SWUP) development began to address known deficiencies and capability upgrades to system performance. In FY10, HTS R7 SWUP flight testing begins.

This PE is in Budget Activity 7 - Operational System Development because it supports preplanned product improvements and upgrade development of F-16 HTS (R7), a fielded system, to the HTS R7 SWUP configuration.

**(U) B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	0.000	5.585	0.000
(U) Current PBR/President's Budget	0.500	5.570	10.748
(U) Total Adjustments	0.500	-0.015	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.015	
Congressional Increases			
Reprogrammings	0.500		
SBIR/STTR Transfer			
(U) <u>Significant Program Changes:</u>			

**Exhibit R-2, RDT&E Budget Item Justification**

DATE

**May 2009**

BUDGET ACTIVITY

**07 Operational System Development**

PE NUMBER AND TITLE

**0207136F Manned Destructive Suppression**

Funding was reprogrammed in FY08 to provide needed bridge and follow-on study money to prepare for HTS R7 SWUP in beginning FY09. Additional funds were added for FY2010 to provide continued capability upgrades for HTS needed to address evolving threats, address performance shortfalls, additional operational requirements and aircraft operational flight programs changes or issues.



**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>							PE NUMBER AND TITLE <b>0207136F Manned Destructive Suppression</b>		PROJECT NUMBER AND TITLE <b>4595 F-16 HARM Targeting System</b>	
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
4595 F-16 HARM Targeting System	0.500	5.570	10.748	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

The overall Manned Destructive Suppression (MDS) program funds the development, procurement, and sustainment of the Air Force's Suppression of Enemy Air Defenses (SEAD) and Destruction of Enemy Air Defenses (DEAD) capabilities. The F-16 HARM Targeting System (HTS) is currently the only programmed reactive SEAD capability and enables targeting the HARM missile in its most lethal 'range known' mode. The program provides F-16 Block 50/52 aircraft with the ability to employ the AN/ASQ-213 Pod. With the introduction of HTS Revision 7 (HTS R7), the AN/ASQ-213 Pod has a precision geolocation capability to target Precision Guided Munitions (PGMs) to destroy fixed and mobile enemy air defense elements, and enables the F-16 to carry both an AN/ASQ-213 HTS R7 Pod and an Advanced Targeting Pod (ATP), by relocating HTS R7 pod to the aircraft's left inlet hard point. HTS R7 completed System Development and Demonstration (SDD) in FY07 following operational testing certification and fielding on the first F-16 Block 50/52 squadron in May 07. These improvements represent the Air Force's near-term solution for reactive time critical targeting for DEAD until this mission can be transferred to F-35 or a yet to be defined system. HTS R7 precision targeting coordinates will be available to all Joint Forces via Link-16. This RDT&E effort continues preplanned product improvements (P3I) and applies technologies similar to those demonstrated in the Advanced Tactical Targeting Technologies (AT3) program and HTS R7 development. An on-going HTS R7 follow-on study was concluded in early FY09 to perform investigations, studies, risk reduction and pre-planning activities for P3I and also to address near-term deficiencies deferred from HTS R7 development. In FY 09, HTS Revision 7 (HTS R7) software upgrade (SWUP) development began to address known deficiencies and capability upgrades to system performance. In FY10, HTS R7 SWUP flight testing begins.

This PE is in Budget Activity 7 - Operational System Development because it supports preplanned product improvements and upgrade development of F-16 HTS (R7), a fielded system, to the HTS R7 SWUP configuration.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) P3I R7 SWUP Contract and Flight Testing		4.711	8.879
(U) Air Force Mission Support System (AFMSS) Update Effort		0.438	0.818
(U) Continue Mission Support		0.421	1.051
(U) R7 Follow-on Study	0.500		
(U) Total Cost	0.500	5.570	10.748

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to Complete</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>		
(U) HTS Aircraft Procurement (BP19) APAF PE 0207136F	33.099	10.089	0.000	0.000	0.000	0.000	0.000	0.000	0.000	43.188

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

May 2009

BUDGET ACTIVITY

**07 Operational System Development**

PE NUMBER AND TITLE

**0207136F Manned Destructive  
Suppression**

PROJECT NUMBER AND TITLE

**4595 F-16 HARM Targeting System****(U) C. Other Program Funding Summary (\$ in Millions)**

FY2008 APAF funding totals include \$23.038 in supplemental funding

**(U) D. Acquisition Strategy**

The HTS R7 included accomplishment of risk reduction studies and selection of appropriate contracting strategies for P3I and upgrade of HTS inventory.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE				
<b>07 Operational System Development</b>				<b>0207136F Manned Destructive Suppression</b>				<b>4595 F-16 HARM Targeting System</b>				
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2008 Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date	Cost to Complete	Total Cost	Target Value of Contract
(U) <u>Product Development</u>												
Raytheon Systems Co.	SS/Various		93.075	0.500		4.711		7.423			105.709	
Raytheon Systems Co.	SS/CPAF		31.431								31.431	
AFMSS	SS/CPIF		2.674			0.438		0.818			3.930	
Lockheed/Ft Worth	SS/FFP		2.400								2.400	
Subtotal Product Development			129.580	0.500		5.149		8.241		0.000	143.470	0.000
Remarks:	HTS R7 SWUP/P3I begins in FY09.											
(U) <u>Support</u>												
Mission Support	Various		9.837			0.421		1.051			11.309	
Subtotal Support			9.837	0.000		0.421		1.051		0.000	11.309	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
Eglin	PO		2.175								2.175	
Edwards	PO		14.269					1.456			15.725	
Light Defender			0.922								0.922	
Subtotal Test & Evaluation			17.366	0.000		0.000		1.456		0.000	18.822	0.000
Remarks:	Light Defender was a foreign system that was evaluated for possible SEAD role in 1995-96; but was not procured.											
(U) <u>Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			156.783	0.500		5.570		10.748		0.000	173.601	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

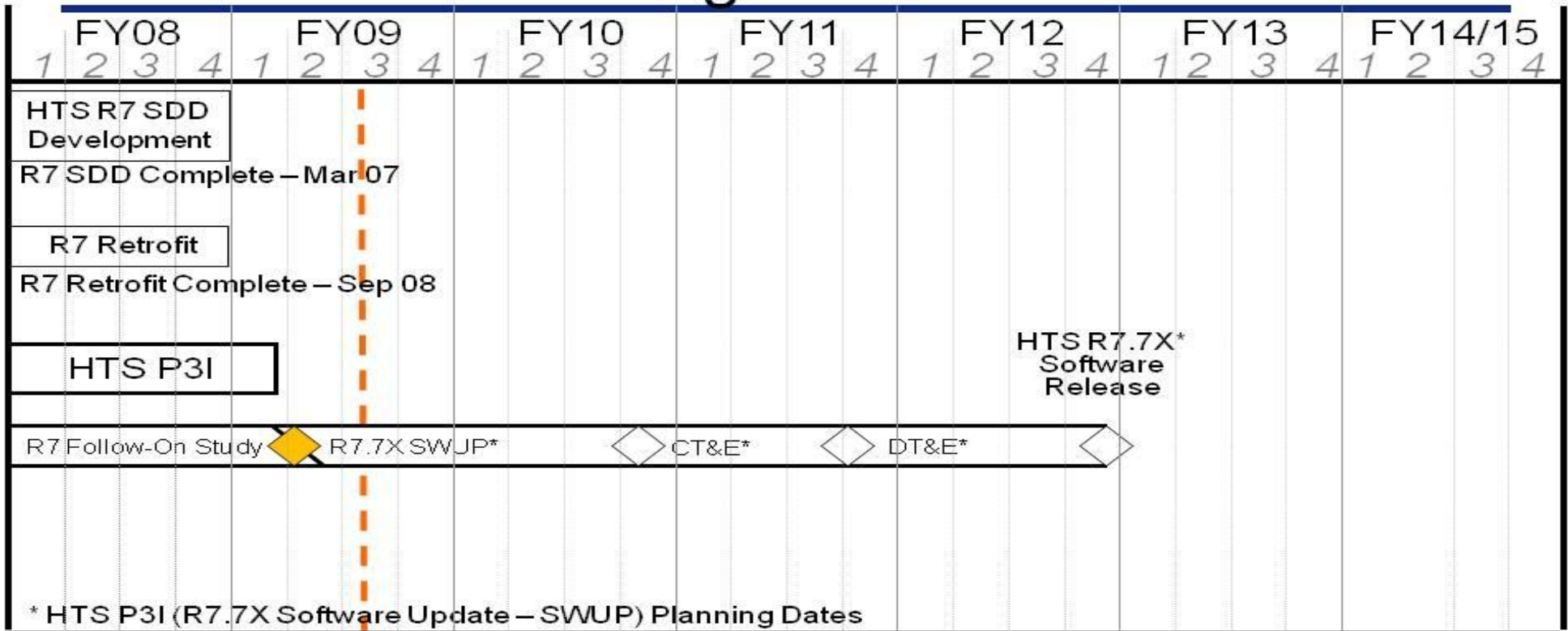
May 2009

BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0207136F Manned Destructive  
Suppression

PROJECT NUMBER AND TITLE  
4595 F-16 HARM Targeting System

# Manned Destructive Suppression Program Schedule



\* HTS P3I (R7.7X Software Update – SWUP) Planning Dates

SDD – System Development & Demonstration  
P3I – PrePlanned Product Improvement

SWUP – Software Upgrade Program  
CT&E – Contractor Test and Evaluation

DT&E - Developmental Test and Evaluation

<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>May 2009</b>
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BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0207136F Manned Destructive Suppression</b>	PROJECT NUMBER AND TITLE <b>4595 F-16 HARM Targeting System</b>
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	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) <b><u>Schedule Profile</u></b>			
(U) R7 Follow-on Study Complete (SWUP Risk Reduction)		2Q	
(U) R7 SWUP Contract Award		2Q	
(U) R7 SWUP Flight Test Start (DT&E)			4Q

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**UNCLASSIFIED**

PE NUMBER: 0207138F  
 PE TITLE: F-22 SQUADRONS

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0207138F F-22 SQUADRONS</b>
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	607.785	605.659	569.345	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
4785 F-22	607.785	605.659	569.345	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

**(U) A. Mission Description and Budget Item Justification**

The F-22 Raptor represents the USAF's top priority for providing the Joint Force with air dominance, operational access, and homeland and cruise missile defense for the next 20+ years. The F-22 is a first-of-a-kind multi-mission fighter aircraft that combines stealth, supercruise, advanced maneuverability and integrated avionics to make it the world's most capable combat aircraft. The Engineering and Manufacturing Development (EMD) phase of F-22 acquisition is complete. The program is now continuing the pre-planned modernization effort through incremental development phases that enhance the F-22 Global Strike capability.

The development program enhances the air vehicle, engine, and training system to improve/enhance F-22 weapons, communications, and Intelligence Surveillance Reconnaissance (ISR) capabilities.

This program is in Budget Activity 7, Operational System Development, because the F-22 program is developing the next-generation air dominance fighter for the USAF to counter emerging worldwide threats.

**(U) B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	607.515	700.305	505.637
(U) Current PBR/President's Budget	607.785	605.659	569.345
(U) Total Adjustments	0.270	-94.646	
(U) Congressional Program Reductions		-93.000	
Congressional Rescissions		-1.646	
Congressional Increases			
Reprogrammings	17.000		
SBIR/STTR Transfer	-16.730		

**(U) Significant Program Changes:**

FY08: \$.3M increase due to \$17M reprogramming to support engines and Increment 3.2 Phase A development.

FY09: \$93M reduction due to FY09PB Congressional Marks: \$38M Engines, \$20M Lab Infrastructure, and \$35M Program Growth

FY10: \$64M increase due to F-22 Modernization, RAMMP, and Trainers Common Configuration.

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>					PE NUMBER AND TITLE <b>0207138F F-22 SQUADRONS</b>			PROJECT NUMBER AND TITLE <b>4785 F-22</b>		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
4785 F-22	607.785	605.659	569.345	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

The F-22 Raptor represents the USAF's top priority for providing the Joint Force with air dominance, operational access, and homeland and cruise missile defense for the next 20+ years. The F-22 is a first-of-a-kind multi-mission fighter aircraft that combines stealth, supercruise, advanced maneuverability and integrated avionics to make it the world's most capable combat aircraft. The Engineering and Manufacturing Development (EMD) phase of F-22 acquisition is complete. The program is now continuing the pre-planned modernization effort through incremental development phases that enhance the F-22 Global Strike capability.

The development program enhances the air vehicle, engine, and training system to improve/enhance F-22 weapons, communications, and Intelligence Surveillance Reconnaissance (ISR) capabilities.

This program is in Budget Activity 7, Operational System Development, because the F-22 program is developing the next-generation air dominance fighter for the USAF to counter emerging worldwide threats.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Continue requirements definition and increment development activities for planned hardware and software capability upgrades. --Complete Increment 2 to develop Global Strike Conops basic capabilities. --Continue Increment 3 to develop Global Strike Conops enhanced capabilities.	411.739	420.052	397.991
(U) Continue System Engineering/Program Management Support	16.485	15.000	15.920
(U) Continue Air Vehicle Instrumentation support (Training and Test Instrumentation)	2.100	0.700	0.000
(U) Continue flight test and flight test support	121.095	125.000	127.605
(U) Continue mission support of the Program Office; travel, computer costs, misc contracts, etc.	10.501	8.807	10.829
(U) Continue F-22 Reliability and Maintainability Maturation Program (RAMMP)	25.580	10.000	13.000
(U) Initiate Aircraft Structural Integrity Program (ASIP)	3.070	4.700	4.000
(U) Replacement Test Aircraft (RTA) and Instrumentation	17.215	21.400	0.000
(U) Total Cost	607.785	605.659	569.345

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2008</u> <u>Actual</u>	<u>FY 2009</u> <u>Estimate</u>	<u>FY 2010</u> <u>Estimate</u>	<u>FY 2011</u> <u>Estimate</u>	<u>FY 2012</u> <u>Estimate</u>	<u>FY 2013</u> <u>Estimate</u>	<u>FY 2014</u> <u>Estimate</u>	<u>FY 2015</u> <u>Estimate</u>	<u>Cost to</u> <u>Complete</u>	<u>Total Cost</u>
(U) AF RDT&E (PE 0604239F)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	24,295.158



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<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>May 2009</b>
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BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0207138F F-22 SQUADRONS</b>	PROJECT NUMBER AND TITLE <b>4785 F-22</b>
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**(U) C. Other Program Funding Summary (\$ in Millions)**

(U)	PRTV II (6)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1,580.580
(U)	F-22A Squadrons										
	Procurement (3010) (PE 0207138F)*	383.988	456.446	448.325	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
(U)	F-22A Squadrons										
	Procurement (3080) (PE 0207138F)	4.011	0.000	1.210	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
(U)	Military Construction (PE 0604239F)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	65.000
(U)	Military Construction (PE 0207219F)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	96.018
(U)	Military Construction (PE 0207138F)	57.439	197.750	39.153	0.000	0.000	0.000	0.000	0.000	0.000	496.660
(U)	Aircraft Procurement (PE 0207219F) Advanced Tactical Fighter, P-1 Line Item #003**	3554.447	3454.854	97.058	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
(U)	Munitions Procurement (PE 0207219F)	12.574	12.829	15.933	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
(U)	Tactical Data Link RDT&E (PE 0207445F)	57.424	57.264	72.106	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

\* NOTE: Includes PE 0207138F BP11, 12, 16, and 19 (Depot Activation)

\*\* NOTE: Includes PE 0207219F BP10, 11, and 19 (Other Useful Loads)

**(U) D. Acquisition Strategy**

The Raptor Enhancement Development & Integration (REDI) contract is an Indefinite Delivery/Indefinite Quantity Ordering contract that maximizes flexibility to start, stop, accelerate and decelerate projects as required. The REDI contract was established to be more responsive to evolving war fighter requirements. The REDI contract allows the issuance of orders for the highest priority war fighter capabilities in operationally meaningful capability increments, requirements analysis, contractor cost estimates and studies, development and demonstration of capability enhancements, and unanticipated future war fighter requirements. Each increment is broken into phases. Phase A is to initiate requirements analysis, Phase B is the design phase and Phases C, D, and E are the development, integration and verification phase of a specific incremental development effort. Separate delivery orders will be issued for various phases of an increment. These separate delivery orders at these predetermined breakpoints allow the modernization program to be tailored to the technology maturity, available funding and capability priority during the life of the program.

UNCLASSIFIED

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>07 Operational System Development</b>				<b>0207138F F-22 SQUADRONS</b>					<b>4785 F-22</b>			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2008 Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date	Cost to Complete	Total Cost	Target Value of Contract
(U) <u>Product Development</u>												
Increment development activities	Cost Plus	Lockheed Martin	1,035.813	411.739	Dec-07	420.052	Dec-08	397.991	Dec-09	Continuing	TBD	
Air Vehicle Instrumentation support (Training and Test Instrumentation)	Cost Plus	Lockheed Martin	21.032	2.100	Oct-07	0.700	Oct-08	0.000		Continuing	TBD	
System Engineering / Program Management	Cost Plus	Lockheed Martin	114.831	16.485	Dec-07	15.000	Dec-08	15.920	Dec-09	Continuing	TBD	
F-22A Reliability and Maintainability Maturation Program (RAMMP)	Cost Plus	Lockheed Martin	41.641	25.580	Dec-07	10.000	Dec-08	13.000	Dec-09	Continuing	TBD	
Aircraft Structural Integrity Program (ASIP)	Cost Plus	Lockheed Martin	0.000	3.070	Dec-07	4.700	Dec-08	4.000	Dec-09	Continuing	TBD	
Subtotal Product Development			1,213.317	458.974		450.452		430.911		Continuing	TBD	0.000
Remarks:												
(U) <u>Support</u>												
Support Contracts	Various		33.938	10.501		8.807		10.829		Continuing	TBD	
Subtotal Support			33.938	10.501		8.807		10.829		Continuing	TBD	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
AFFTC and Contractor Flight Test Support	Various	Lockheed Martin, Pratt & Whitney, and Edwards AFB	165.784	121.095	Nov-07	125.000	Nov-08	127.605	Nov-09	Continuing	TBD	
Replacement Test Aircraft (RTA) and Instrumentation	Cost Plus / Fixed Price	Lockheed Martin	73.335	17.215	Dec-07	21.400	Dec-08	0.000		0.000	111.950	126.155
Subtotal Test & Evaluation			239.119	138.310		146.400		127.605		Continuing	TBD	126.155
Remarks:												
(U) <u>Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			1,486.374	607.785		605.659		569.345		Continuing	TBD	126.155

R-1 Line Item No. 134

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Project 4785

Exhibit R-3 (PE 0207138F)

Exhibit R-4, RDT&E Schedule Profile

DATE

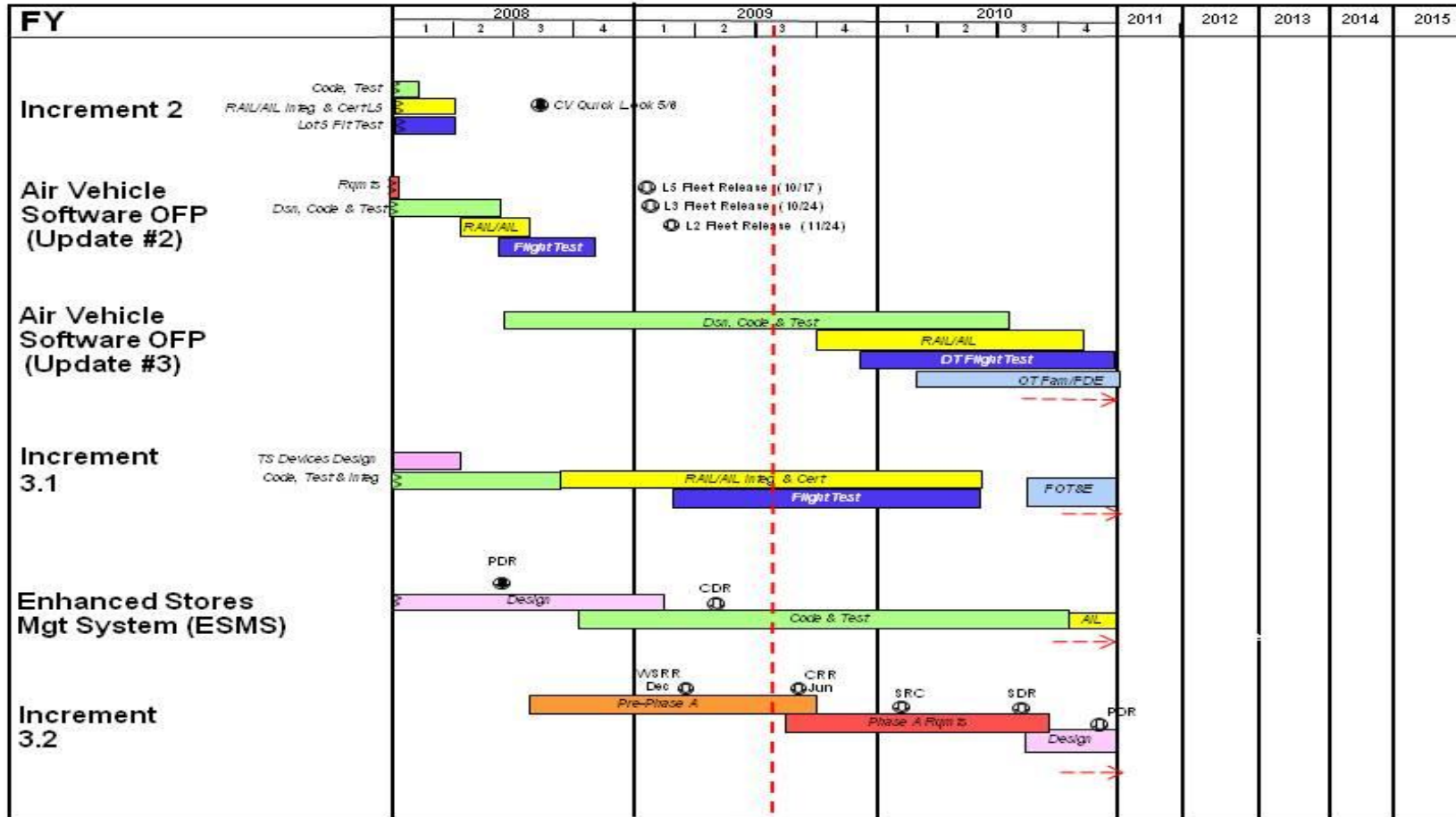
May 2009

BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0207138F F-22 SQUADRONS

PROJECT NUMBER AND TITLE  
4785 F-22

## Modernization Schedule Summary



UNCLASSIFIED

**Exhibit R-4a, RDT&E Schedule Detail**

DATE

**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0207138F F-22 SQUADRONS</b>	PROJECT NUMBER AND TITLE <b>4785 F-22</b>
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(U) <u>Schedule Profile</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Complete Increment 2 Phase C, D, &E (Development, Integration & Test)	2Q		
(U) Complete Inc 3.1 Phase C			2Q
(U) Initiate Increment 3.2 Pre-Phase A (Requirements Analysis)	2Q		
(U) --Increment 3.2 SRR		1Q	
(U) --Increment 3.2 CRR		3Q	
(U) Increment 3.2 Phase A Requirements		3Q	
(U) --Increment 3.2 SRC			1Q
(U) --Increment 3.2 SDR			3Q
(U) Increment 3.2 Design Phase			3Q
(U) --Increment 3.2 PDR			4Q
(U) Enhanced Stores Management System (ESMS) PDR	2Q		
(U) Initiate ESMS Phase C (Development, Integration, & Test)	3Q		
(U) ESMS CDR		2Q	

**UNCLASSIFIED**

PE NUMBER: 0207161F  
 PE TITLE: Tactical AIM Missiles

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0207161F Tactical AIM Missiles</b>
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	7.692	5.732	5.915	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
4132 AIM-9 Product Improvement	7.692	5.732	5.915	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

**(U) A. Mission Description and Budget Item Justification**

The AIM-9X Sidewinder short-range air-to-air missile is a long-term evolution of the AIM-9 series of fielded missiles. The AIM-9X missile program provides a launch and leave, air combat munition that uses passive infrared (IR) energy for acquisition and tracking of enemy aircraft and complements the Advanced Medium Range Air-to-Air Missile (AMRAAM). Air superiority in the short range air-to-air missile arena is essential and includes first-shot, first-kill opportunity against an enemy employing IR countermeasures.

The AIM-9X employs several components common with the AIM-9M (fuse, rocket motor, and warhead). Anti-Tamper features have been incorporated to protect improvements inherent in this design. AIM-9X is an Acquisition Category 1C (ACAT 1C) joint-service program (Navy is the executive Service). The Navy is procuring a total of 4,937 missiles of which 1,085 are Captive Air Training Missiles (CATMs). The Air Force is procuring a total of 5,097 missiles of which 1,100 are CATMs.

As a natural course of program evolution, pre-planned product improvements (P3I) hardware/software upgrades are being done to meet evolving threats and warfighter requirements. The current P3I effort is the Block II missile which is in SDD. The program is in full-rate production (FRP) with Lot 8 contract awarded Jan 08.

The program is in budget activity 7 - Operational System Development - modifies an existing weapon system.

**(U) B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	7.876	5.748	6.017
(U) Current PBR/President's Budget	7.692	5.732	5.915
(U) Total Adjustments	-0.184	-0.016	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.016	
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer	-0.184		
(U) <u>Significant Program Changes:</u>			
None.			

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>					PE NUMBER AND TITLE <b>0207161F Tactical AIM Missiles</b>			PROJECT NUMBER AND TITLE <b>4132 AIM-9 Product Improvement</b>		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
4132 AIM-9 Product Improvement	7.692	5.732	5.915	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

The AIM-9X Sidewinder short-range air-to-air missile is a long-term evolution of the AIM-9 series of fielded missiles. The AIM-9X missile program provides a launch and leave, air combat munition that uses passive infrared (IR) energy for acquisition and tracking of enemy aircraft and complements the Advanced Medium Range Air-to-Air Missile (AMRAAM). Air superiority in the short range air-to-air missile arena is essential and includes first-shot, first-kill opportunity against an enemy employing IR countermeasures.

The AIM-9X employs several components common with the AIM-9M (fuse, rocket motor, and warhead). Anti-Tamper features have been incorporated to protect improvements inherent in this design. AIM-9X is an Acquisition Category 1C (ACAT 1C) joint-service program (Navy is the executive Service). The Navy is procuring a total of 4,937 missiles of which 1,085 are Captive Air Training Missiles (CATMs). The Air Force is procuring a total of 5,097 missiles of which 1,100 are CATMs.

As a natural course of program evolution, pre-planned product improvements (P3I) hardware/software upgrades are being done to meet evolving threats and warfighter requirements. The current P3I effort is the Block II missile which is in SDD. The program is in full-rate production (FRP) with Lot 8 contract awarded Jan 08.

The program is in budget activity 7 - Operational System Development - modifies an existing weapon system.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Raytheon Missile Systems (RMS) P3I Contract	1.284	1.222	1.793
(U) Software/OFP Upgrade	1.611	1.162	1.394
(U) DT&E/OT&E for P3I updates and FOT&E efforts	4.334	2.877	2.243
(U) In-house/CSS Support	0.463	0.471	0.485
(U) Total Cost	7.692	5.732	5.915

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) DOD PE (0603715D)										25.000
(U) Tactical AIM Missile Modification (BP21)										30.817
(U) Tactical AIM Missile Procurement, BP20	52.334	76.995	78.753	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
(U) Tactical AIM Missile	4.660	4.695	0.819	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>May 2009</b>
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BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0207161F Tactical AIM Missiles</b>	PROJECT NUMBER AND TITLE <b>4132 AIM-9 Product Improvement</b>
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(U) **C. Other Program Funding Summary (\$ in Millions)**

Procurement, BP25											
(U)	Tactical AIM Missile Procurement, BP26	1.528	1.231	1.576	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
(U)	SEEK EAGLE (PE 0207590F)										10.028

Congressional language directed the program to report as a missile procurement, starting in FY02, and not as a missile modification.

(U) **D. Acquisition Strategy**

After a full and open competition, a Cost Plus Incentive Fee/Award Fee contract was awarded to Hughes Missile Systems Company (now Raytheon Systems Corp (RSC)) to complete missile system development and prepare for production. This EMD contract included three Fixed Price Options for Low Rate Initial Production (LRIP) Lots 1, 2, and 3. Per an ADM signed in May 2003, Full Rate Production (FRP) Lot 4 was changed to LRIP 4 which was awarded in Apr 2004.

Milestone III decision was approved in May 04. FRP 1 (Lot 5) - FRP 3 (Lot 7) are Firm Fixed Price (FFP) with incentives provided if the contractor meets or beats his Procurement Price Commitment Curve (PPCC). Lot 7 is the last lot under the current PPCC. FRP's 4-8, (Lots 8-12) will be procured under separate, stand-alone contracts with a new pricing model.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE				
<b>07 Operational System Development</b>				<b>0207161F Tactical AIM Missiles</b>					<b>4132 AIM-9 Product Improvement</b>				
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>	
(U) <u>Product Development</u>													
Hughes	C/CPIF									0.000	0.000		
Raytheon	C/CPIF									0.000	0.000		
Raytheon	C/CPIF									Continuing	TBD		
Raytheon Software/OFP Upgrades	C/CPIF			1.611	Jan-08	1.162	Dec-08	1.394	Dec-09	Continuing	TBD		
Raytheon P3I Contract	C/CPIF			1.284	Jan-08	1.222	Dec-08	1.793	Dec-09	Continuing	TBD		
Boeing	C/CPIF										0.000		
Engineering Services	Various									Continuing	TBD		
Program Management*	PO									Continuing	TBD		
Subtotal Product Development			0.000	2.895		2.384		3.187		Continuing	TBD	0.000	
Remarks:	Note*: Based on an MOA, RDT&E program costs includes Navy PMA working capital funded personnel funded at 50%/50% ratio per Service.												
(U) <u>Support</u>													
Various Contracts	FFP									Continuing	TBD		
In House Support	N/A			0.463	Jan-08	0.471	Dec-08	0.485	Dec-09	Continuing	TBD		
Subtotal Support			0.000	0.463		0.471		0.485		Continuing	TBD	0.000	
Remarks:													
(U) <u>Test &amp; Evaluation</u>													
Field Activities	PO			4.334	Jan-08	2.877	Dec-08	2.243	Dec-09	Continuing	TBD		
Subtotal Test & Evaluation			0.000	4.334		2.877		2.243		Continuing	TBD	0.000	
Remarks:													
(U) <u>Management</u>													
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000	
Remarks:													
(U) Total Cost			0.000	7.692		5.732		5.915		Continuing	TBD	0.000	



Exhibit R-4, RDT&E Schedule Profile

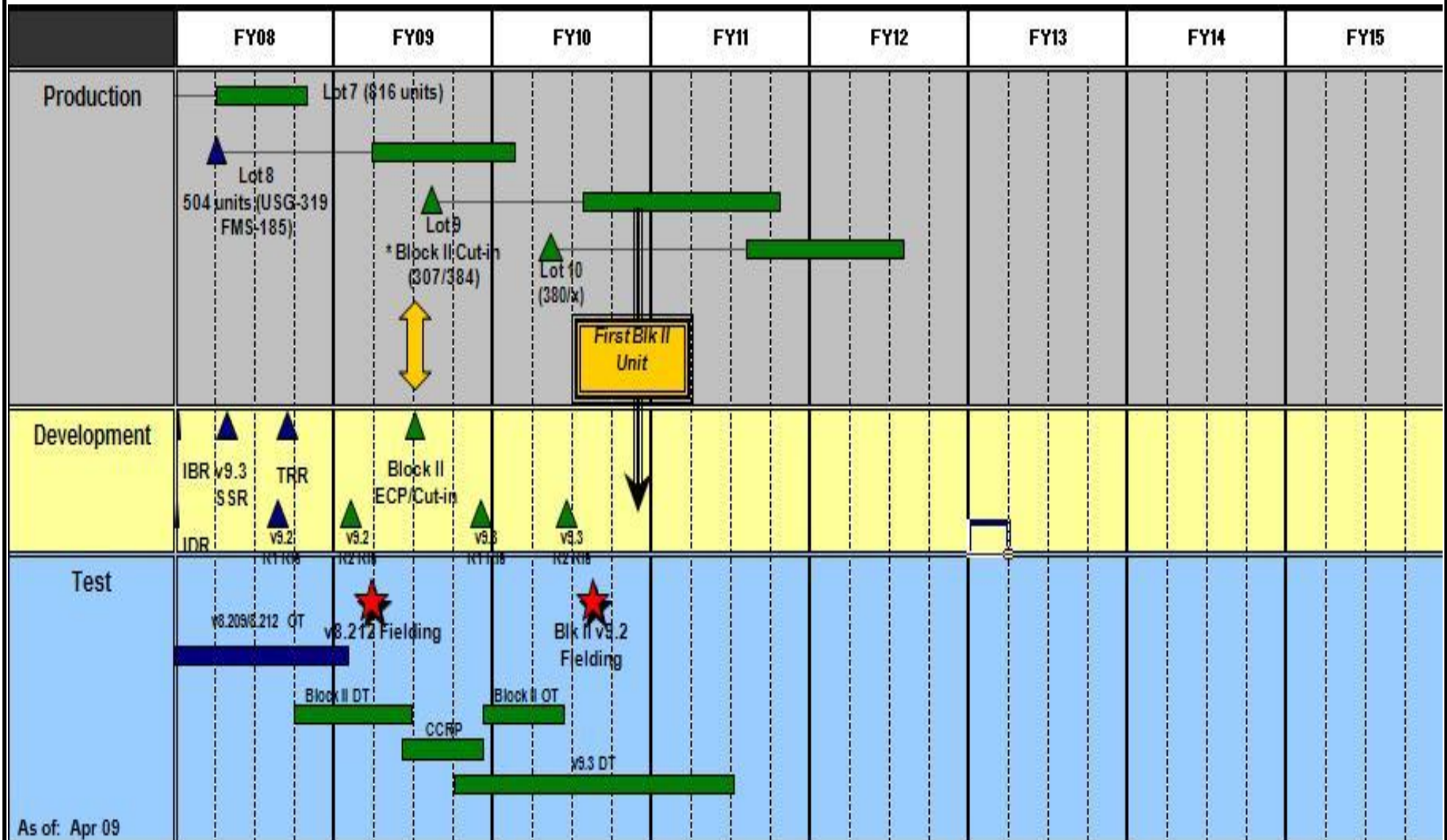
DATE

May 2009

BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0207161F Tactical AIM Missiles

PROJECT NUMBER AND TITLE  
4132 AIM-9 Product Improvement



As of: Apr 09

R-1 Line Item No. 135

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Exhibit R-4 (PE 0207161F)

Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0207161F Tactical AIM Missiles</b>	PROJECT NUMBER AND TITLE <b>4132 AIM-9 Product Improvement</b>
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(U) <u>Schedule Profile</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Block II Developmental Test (DT)	4Q	2-3Q	
(U) Block II Captive Carry Reliability Program (CCRP)		2-4Q	
(U) Block II Operational Test (OT)		4Q	2Q
(U) Block II v9.3 DT		4Q	
(U) Full-Rate Production (FRP) 4 Award (Lot 8)	2Q		
(U) FRP 5 Award (Lot 9)		3Q	
(U) FRP 6 Award (Lot 10)			2Q
Note: LRIP 4 Award was in 3Q 2004; RAA/IOC 2Q 2004; Milestone 3 was in 3Q 2004.			

**UNCLASSIFIED**

PE NUMBER: 0207163F  
 PE TITLE: Advanced Medium Range Air-to-Air Missile

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>May 2009</b>
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BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0207163F Advanced Medium Range Air-to-Air Missile</b>
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	36.414	54.092	49.971	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
3777 AMRAAM	36.414	54.092	49.971	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

**(U) A. Mission Description and Budget Item Justification**

The Air Force and Navy continue to develop improvements to the Advanced Medium Range Air-to-Air Missile (AMRAAM) to counter existing and emerging air vehicle threats operating at high or low altitude having advanced Electronic Protection (EP) capabilities. The AMRAAM Pre-Planned Product Improvement (P3I) program provides for a continuing Joint Air Force/Navy research and development program which enables AMRAAM to be compatible with advanced fighters, enhance AMRAAM capability and operational flexibility against 2010 and beyond threats, incorporate high payoff technology developments, and investigate new variants and/or alternate missions which may use AMRAAM attributes.

Improvements delivered under the original three-phase P3I program include enhanced EP capabilities and improved weapon effectiveness through improved fuzing, guidance, and increased kinematics. The current improvement program, AIM-120D (Phase 4) will deliver improved performance via GPS-aided navigation, a two-way datalink capability for enhanced aircrew survivability and improved network compatibility, and incorporates new guidance software which will improve kinematic and weapon effectiveness performance. Phase 4 Functional Configuration Audit (FCA) will complete in June 09 with Initial Operational Capability (IOC) on the F/A-18 E/F and F-15 C/D the first quarter of FY11. AMRAAM is a joint Air Force/Navy, Acquisition Category IC (ACAT IC) program with Air Force as lead service.

To keep the existing inventory as effective as possible, the AF and Navy also develop, test and incorporate improvements that are implemented via software upgrades reprogrammed into fielded weapons, and/or hardware upgrades inserted into production units. Also, funding begins in FY09 for risk reduction studies in support of the Joint Dual Role Air Dominance Missile (JDRADM). JDRADM funding in FY10 and out is in Program Element (PE) 0604330F.

This program is in budget activity 7 - Operational System Development, providing upgrades to AIM-120 missiles currently fielded or in production.

**(U) B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	33.425	54.239	39.955
(U) Current PBR/President's Budget	36.414	54.092	49.971
(U) Total Adjustments	2.989	-0.147	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.147	
Congressional Increases			
Reprogrammings	3.900		
SBIR/STTR Transfer	-0.911		

**(U) Significant Program Changes:**

**Exhibit R-2, RDT&E Budget Item Justification**

DATE

**May 2009**

BUDGET ACTIVITY

**07 Operational System Development**

PE NUMBER AND TITLE

**0207163F Advanced Medium Range Air-to-Air Missile**

FY08 \$3.9M reprogrammed for Electronic Protection software.  
FY10 funding increase is for AIM-120 software upgrades and F-22 integration.

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

May 2009

BUDGET ACTIVITY <b>07 Operational System Development</b>							PE NUMBER AND TITLE <b>0207163F Advanced Medium Range Air-to-Air Missile</b>		PROJECT NUMBER AND TITLE <b>3777 AMRAAM</b>	
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
3777 AMRAAM	36.414	54.092	49.971	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

The Air Force and Navy continue to develop improvements to the Advanced Medium Range Air-to-Air Missile (AMRAAM) to counter existing and emerging air vehicle threats operating at high or low altitude having advanced Electronic Protection (EP) capabilities. The AMRAAM Pre-Planned Product Improvement (P3I) program provides for a continuing Joint Air Force/Navy research and development program which enables AMRAAM to be compatible with advanced fighters, enhance AMRAAM capability and operational flexibility against 2010 and beyond threats, incorporate high payoff technology developments, and investigate new variants and/or alternate missions which may use AMRAAM attributes.

Improvements delivered under the original three-phase P3I program include enhanced EP capabilities and improved weapon effectiveness through improved fuzing, guidance, and increased kinematics. The current improvement program, AIM-120D (Phase 4) will deliver improved performance via GPS-aided navigation, a two-way datalink capability for enhanced aircrew survivability and improved network compatibility, and incorporates new guidance software which will improve kinematic and weapon effectiveness performance. Phase 4 Functional Configuration Audit (FCA) will complete in June 09 with Initial Operational Capability (IOC) on the F/A-18 E/F and F-15 C/D the first quarter of FY11. AMRAAM is a joint Air Force/Navy, Acquisition Category IC (ACAT IC) program with Air Force as lead service.

To keep the existing inventory as effective as possible, the AF and Navy also develop, test and incorporate improvements that are implemented via software upgrades reprogrammed into fielded weapons, and/or hardware upgrades inserted into production units. Also, funding begins in FY09 for risk reduction studies in support of the Joint Dual Role Air Dominance Missile (JDRADM). JDRADM funding in FY10 and out is in Program Element (PE) 0604330F.

This program is in budget activity 7 - Operational System Development, providing upgrades to AIM-120 missiles currently fielded or in production.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Continue effort to complete qualification of the Phase 4 missile design	15.849	9.000	0.000
(U) Continue to provide software upgrades/system improvement/electronic protection	3.888	5.000	29.300
(U) Continue mission support: Provide program management to execute Phase 4 program	1.991	2.404	2.125
(U) Continue test and evaluation: Provide support to DT/OT	8.586	18.025	4.007
(U) Aircraft Integration - Integrate Phase 4 on multiple aircraft platforms	6.100	12.663	14.539
(U) Joint Dual Role Air Dominance Missile (JDRADM)	0.000	7.000	0.000
(U) Total Cost	36.414	54.092	49.971

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207163F Advanced Medium Range  
Air-to-Air Missile

PROJECT NUMBER AND TITLE

3777 AMRAAM

(U) **C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Missile Procurement, Budget Activity #2, PE 0207163F, P-1 Line Item, AMRAAM	190.797	203.841	291.827	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
(U) Replenishment Spares, BP25 and Missile Replacement Equipment	0.204	0.211	0.803	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
(U) Initial Spares, BP26	3.645	0.077	0.077	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
(U) AMRAAM Field Reprogrammer, BP 22	5.716	5.722	5.264							16.702

(U) **D. Acquisition Strategy**

The AIM-120D SDD contract, awarded in Dec 03, is intended to meet the requirement to evolve the AMRAAM for improved performance. Initial limited production of the AIM-120D missile began in FY06. The AIM-120D Missile Performance Specification (MPS) and Interface Control Document (ICD) define the requirement to integrate the Phase 4 AMRAAM onto the F-15, F-16, and F-22A.

UNCLASSIFIED

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>07 Operational System Development</b>				<b>0207163F Advanced Medium Range Air-to-Air Missile</b>					<b>3777 AMRAAM</b>			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2008 Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date	Cost to Complete	Total Cost	Target Value of Contract
(U) <u>Product Development</u>												
Software Upgrade/System Improvement/Electronic Protection	SS/CPFF	Raytheon, Tucson, AZ		3.888	Sep-08	5.000	Apr-09	29.300	Mar-10	Continuing	TBD	TBD
Phase 4 Contract FA8675-04-C-0001	SS/CPFF	Raytheon, Tucson, AZ		15.849	May-08	9.000	Mar-09			Continuing	TBD	TBD
Phase 4 Follow-On Contract	SS/CPFF	Raytheon, Tucson, AZ									0.000	
Aircraft Integration	MIPR	Wright-Patters on AFB, OH		6.100	Dec-07	12.663	Jan-09	14.539	Jan-10	Continuing	TBD	TBD
Joint Dual Role Air Dominance Missile (JDRADM)						7.000	Jan-09			Continuing	TBD	TBD
Subtotal Product Development			0.000	25.837		33.663		43.839		Continuing	TBD	TBD
Remarks:												
												*Note: Hughes became part of Raytheon Systems effective Dec 97
(U) <u>Support</u>												
COEA	PO/MIPR									Continuing	TBD	TBD
Contractor Support	REO/PR			0.650		0.702		0.358		Continuing	TBD	TBD
JSPO Operations	PR/IMPAC			1.341		1.702		1.767		Continuing	TBD	TBD
Subtotal Support			0.000	1.991		2.404		2.125		Continuing	TBD	TBD
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
Government Test	REO/MIPR			8.586		18.025		4.007		Continuing	TBD	TBD
TM/ECM Pods	REO/MIPR									Continuing	TBD	TBD
Subtotal Test & Evaluation			0.000	8.586		18.025		4.007		Continuing	TBD	TBD
Remarks:												
(U) <u>Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000			0.000	0.000
Remarks:												
(U)												
Subtotal			0.000	0.000		0.000		0.000			0.000	0.000
Remarks:												
(U) Total Cost			0.000	36.414		54.092		49.971		Continuing	TBD	TBD

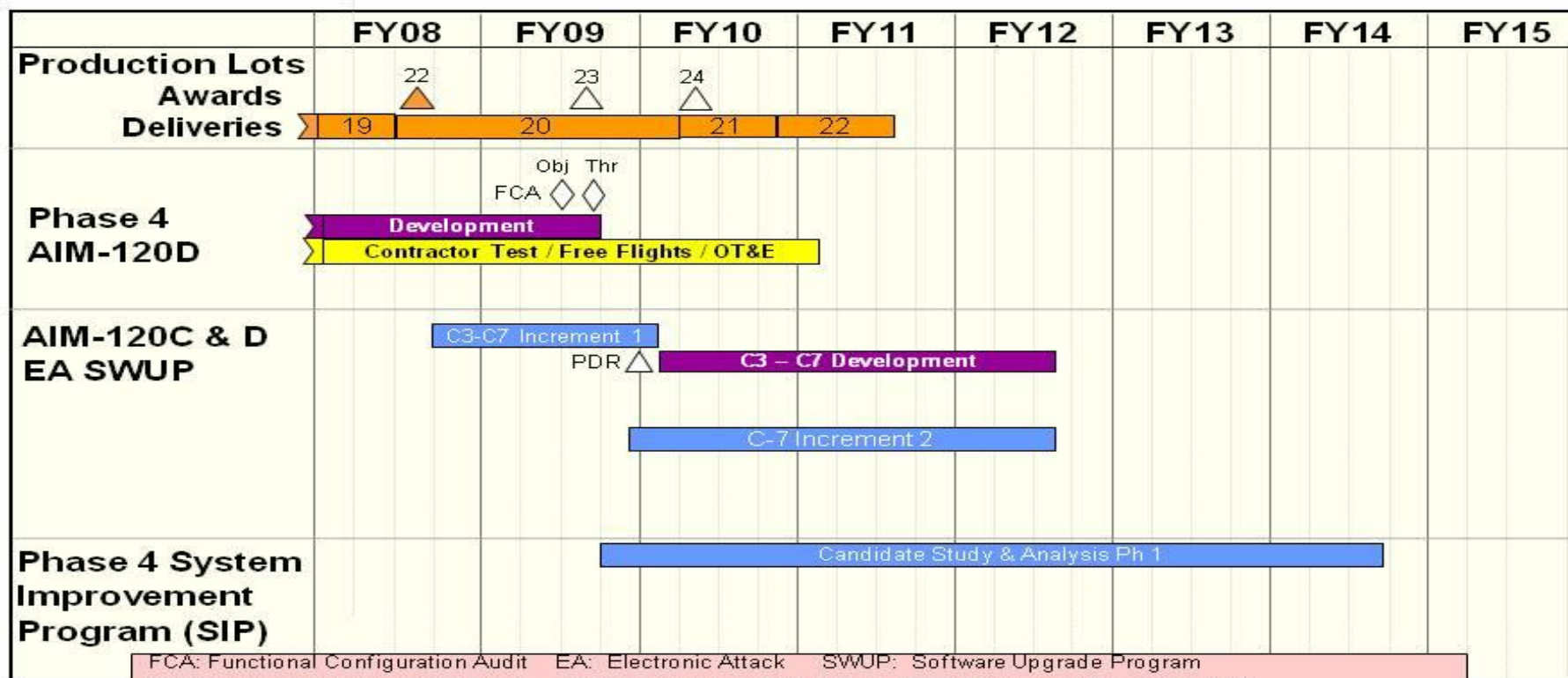
Exhibit R-4, RDT&E Schedule Profile

DATE  
May 2009

BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0207163F Advanced Medium Range  
Air-to-Air Missile

PROJECT NUMBER AND TITLE  
3777 AMRAAM



FCA: Functional Configuration Audit    EA: Electronic Attack    SWUP: Software Upgrade Program  
SIP: System Improvement Program    OT&E: Operational Test & Eval    PDR: Preliminary Design Review

- Concept activities
- Production / fielding
- Design / development
- Integration / test
- Key events
- Key events



UNCLASSIFIED

**Exhibit R-4a, RDT&E Schedule Detail**

DATE

**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0207163F Advanced Medium Range Air-to-Air Missile</b>	PROJECT NUMBER AND TITLE <b>3777 AMRAAM</b>
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(U) <u>Schedule Profile</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) First live launch (F/A-18E/F)	1Q		
(U) Lot 22 (FY08) contract award	3Q		
(U) First live launch (F-15 C/D)	4Q		
(U) Functional Configuration Audit (FCA)		3Q	
(U) System Improvement Program (SIP) contract award		3Q	
(U) Lot 23 (FY09) contract award		2Q	
(U) Lot 24 (FY10) contract award			2Q

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0207170F JHMCS</b>
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	4.244	3.183	2.529	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5226 Joint Helmet Mounted Cueing System	4.244	3.183	2.529	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

**(U) A. Mission Description and Budget Item Justification**

The Joint Helmet Mounted Cueing System (JHMCS) develops a helmet display system capable of depicting aircraft heading data, pilot's viewing perspective, target indication tracking/cueing, and other information on the aircrew visor to enhance pilot situational awareness. This display allows the pilot to quickly align platform sensors and weapons on targets, and engage threats using high off-boresight (HOBS) weapons such as the AIM-9X. This joint AF/Navy program (AF is lead service) is an Acquisition Category (ACAT) III program.

Program is in full rate production (FRP). Continuing activities include, but are not limited to, deficiency resolution; improvements to tooling and test equipment; Electronic Unit (EU) obsolescence/Diminishing Manufacturing Sources (DMS) redesign; a systems engineering approach for implementing alternate displays; improvements to integrate night vision cueing display (NVCD); software updates; integration; improvements to Reliability and Maintainability (R&M); system upgrade studies and analysis; other obsolescence upgrades; improved magnetic mapping processes to reduce maintenance manhours and life cycle costs; and efforts to support the transition to Performance Based Logistics Partnership (PBL/P) and depot activation.

This program is in budget activity 7 - Operational System Development - modification of existing aircraft.

**(U) B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	5.304	3.192	2.572
(U) Current PBR/President's Budget	4.244	3.183	2.529
(U) Total Adjustments	-1.060	-0.009	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.009	
Congressional Increases			
Reprogrammings	-1.060		
SBIR/STTR Transfer			
(U) <u>Significant Program Changes:</u>			
None.			

**Exhibit R-2a, RDT&E Project Justification**

DATE

**May 2009**

<b>BUDGET ACTIVITY</b> 07 Operational System Development				<b>PE NUMBER AND TITLE</b> 0207170F JHMCS				<b>PROJECT NUMBER AND TITLE</b> 5226 Joint Helmet Mounted Cueing System		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5226 Joint Helmet Mounted Cueing System	4.244	3.183	2.529	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

The Joint Helmet Mounted Cueing System (JHMCS) develops a helmet display system capable of depicting aircraft heading data, pilot's viewing perspective, target indication tracking/cueing, and other information on the aircrew visor to enhance pilot situational awareness. This display allows the pilot to quickly align platform sensors and weapons on targets, and engage threats using high off-boresight (HOBS) weapons such as the AIM-9X. This joint AF/Navy program (AF is lead service) is an Acquisition Category (ACAT) III program.

Program is in full rate production (FRP). Continuing activities include, but are not limited to, deficiency resolution; improvements to tooling and test equipment; Electronic Unit (EU) obsolescence/Diminishing Manufacturing Sources (DMS) redesign; a systems engineering approach for implementing alternate displays; improvements to integrate night vision cueing display (NVCD); software updates; integration; improvements to Reliability and Maintainability (R&M); system upgrade studies and analysis; other obsolescence upgrades; improved magnetic mapping processes to reduce maintenance manhours and life cycle costs; and efforts to support the transition to Performance Based Logistics Partnership (PBL/P) and depot activation.

This program is in budget activity 7 - Operational System Development - modification of existing aircraft.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Continue deficiency resolution, reliability improvements, P3I activities, obsolescence upgrades, analysis/studies, alternate displays implementation, support for PBL/Depot line, and software updates. Continue incorporating night vision capabilities into JHMCS by testing and integrating the NVCD system.	3.744	2.683	2.029
(U) Program Management and Support	0.500	0.500	0.500
(U) Total Cost	4.244	3.183	2.529

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to Complete</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>		
(U) RDT&E, BA 5, PE 0604201F, Integrated Avionics Planning and Development										45.200
(U) RDT&E, BA 5, PE 0604012F, JHMCS										17.900

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207170F JHMCS

PROJECT NUMBER AND TITLE

5226 Joint Helmet Mounted Cueing System

(U) **C. Other Program Funding Summary (\$ in Millions)**

Note: Prior to FY01 JHMCS was funded as part of PE 0604201F. Funding from FY01-FY06 is in PE 0604012F.

(U) **D. Acquisition Strategy**

JHMCS is an ACAT III joint USAF/USN program (USAF - executive service). The development contract was Cost Plus Award Fee (CPAF) through Boeing - St. Louis for development/integration on the F-15, F-16, and F/A-18 aircraft. All other aircraft integration will be handled by the respective platform prime contractors. Follow-on contracts are a mixture of CPAF and Firm Fixed Price (FFP). Currently, a transition from Interim Contractor Support (ICS) to a WRALC Mission Support Division (MSD) funded support posture is being worked. Also, an organic depot partnership and PBL/P opportunities are being explored.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0207170F JHMCS</b>	<b>PROJECT NUMBER AND TITLE</b> <b>5226 Joint Helmet Mounted Cueing System</b>
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(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
Continue deficiencies resolution, reliability improvements, P3I activities, obsolescence upgrades, analysis/studies, alternate displays implementation, various T&E activities, and software updates. Continue incorporating night vision capabilities into JHMCS by testing and integrating the NVCD system.	SS, CPAF	Boeing Co. St Louis, MO		3.744		2.683		2.029		Continuing	TBD	TBD
Subtotal Product Development			0.000	3.744		2.683		2.029		Continuing	TBD	TBD
Remarks:												
(U) <u>Management</u>												
Program Management and Administration	C, T&M	Various		0.500		0.500		0.500		Continuing	TBD	TBD
Subtotal Management			0.000	0.500		0.500		0.500		Continuing	TBD	TBD
Remarks:												
(U) Total Cost			0.000	4.244		3.183		2.529		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0207170F JHMCS

PROJECT NUMBER AND TITLE  
5226 Joint Helmet Mounted Cueing System

# JHMCS PROGRAM SCHEDULE

	FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY15
<b><i>Development</i></b>								
<b>Milestones</b>								
P3I	ADI P3I							
DMS	EU-30 DMS							
<b><i>Production</i></b>								
<b>Deliveries</b>								
FRP 5		FRP 5						
FRP 6		FRP 6						
FRP 7+ TBD				FRP 7+				
<b><i>Sustainment</i></b>								
<b>USAF SCM</b>								
ICS	WRALC O&M							
PBL/Partnership		WRALC O&M						
<b>USN CS</b>								
Partnership	F/A-18 USN							
		USN O&M						
<b>Organic Depot</b>								
F-15/16/18 3010		Operational						
DU - Awarded	▲ Awd							
EU - Awarded	▲ Awd							
Cables			▲ Awd					

R-1 Line Item No. 137

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Exhibit R-4 (PE 0207170F)

Project 5226

UNCLASSIFIED

<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>May 2009</b>
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BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0207170F JHMCS</b>	PROJECT NUMBER AND TITLE <b>5226 Joint Helmet Mounted Cueing System</b>
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	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) <b>Schedule Profile</b>			
(U) FRP-5 Contract Award		1Q	
(U) Alternate Displays Implementation Contract Complete		1Q	
(U) FRP-6 Contract Award		1Q	
(U) R&M Updates			2-3Q



**UNCLASSIFIED**

PE NUMBER: 0207227F  
 PE TITLE: Pararescue (Guardian Angel Weapon System)

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0207227F Pararescue (Guardian Angel Weapon System)</b>
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.000	0.000	2.950	0.000	0.000	0.000	0.000	0.000	0.000	0.000
5352 Guardian Angel RDT&E	0.000	0.000	2.950	0.000	0.000	0.000	0.000	0.000	0.000	0.000

**(U) A. Mission Description and Budget Item Justification**

GUARDIAN ANGEL (GA) is an Air Force non-aircraft weapon system program within the overarching Battlefield Airmen Modernization program. GA is a Family of Systems (FoS) – based in both human and equipment capabilities – formulated to execute Air Force Combat Search and Rescue (CSAR) and Personnel Recovery (PR) across the full spectrum of military operations. Established by the Air Force Chief of Staff in 2003 and officially captured in AFPD 10-9, the GA FoS is employed by three distinct Air Force specialties; Pararescuemen (PJ), Survival-Evasion-Resistance-Escape (SERE), and Combat Rescue Officer (CRO). The GA program will standardize and modernize mission essential equipment utilized in extrication, surface/underwater search and recovery, airborne infil/exfil and ground recovery operations. The FY10 funds will be used to develop items within the FoS to include but not limited to technical recovery kits, Guardian Angel Operations Kit and the Guardian Angel Rescue Vehicle.

This program is in Budget Activity 7, Operational System Development, since it improves the already fielded capabilities of the Guardian Angel weapon system by demonstrating technology, component and subsystem maturity.

**(U) B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget			
(U) Current PBR/President's Budget	0.000	0.000	2.950
(U) Total Adjustments	0.000	0.000	
(U) Congressional Program Reductions			
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer			
(U) <u>Significant Program Changes:</u>			

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>				PE NUMBER AND TITLE <b>0207227F Pararescue (Guardian Angel Weapon System)</b>				PROJECT NUMBER AND TITLE <b>5352 Guardian Angel RDT&amp;E</b>			
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total	
5352 Guardian Angel RDT&E	0.000	0.000	2.950	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0			

**(U) A. Mission Description and Budget Item Justification**

GUARDIAN ANGEL (GA) is an Air Force non-aircraft weapon system program within the overarching Battlefield Airmen Modernization program. GA is a Family of Systems (FoS) – based in both human and equipment capabilities – formulated to execute Air Force Combat Search and Rescue (CSAR) and Personnel Recovery (PR) across the full spectrum of military operations. Established by the Air Force Chief of Staff in 2003 and officially captured in AFPD 10-9, the GA FoS is employed by three distinct Air Force specialties; Pararescuemen (PJ), Survival-Evasion-Resistance-Escape (SERE), and Combat Rescue Officer (CRO). The GA program will standardize and modernize mission essential equipment utilized in extrication, surface/underwater search and recovery, airborne infil/exfil and ground recovery operations. The FY10 funds will be used to develop items within the FoS to include but not limited to technical recovery kits, Guardian Angel Operations Kit and the Guardian Angel Rescue Vehicle.

This program is in Budget Activity 7, Operational System Development, since it improves the already fielded capabilities of the Guardian Angel weapon system by demonstrating technology, component and subsystem maturity.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Development			1.800
(U) Test			0.900
(U) Integration			0.250
(U) Total Cost	0.000	0.000	2.950

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) NGREA 350	0.600									0.600
(U) O&M	3.500	6.500								10.000

**(U) D. Acquisition Strategy**

The GA program will address the warfighter immediate needs to standardize, modernize, and develop additional capability for the weapon system used by Combat Rescue Officers and Pararescuemen (Phase one). Until this point, GA has not had a formal acquisition process for the weapon system. The program will also address future requirements for the weapon system that will encompass the needs of all three GA career fields (Phase two). Phase two of the GA program is an incremental evolutionary acquisition effort in which requirements are fulfilled through further sub-system development and integration. These requirements are being identified in an ongoing F-study conducted by HQ ACC. The program has been divided into two phases to more rapidly meet the users immediate need to standardize and modernize the weapon system. This is a new start considering all prior year work was accomplished using 3400 dollars and NGREA 350 fund

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE  
**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>07 Operational System Development</b>				<b>0207227F Pararescue (Guardian Angel Weapon System)</b>					<b>5352 Guardian Angel RDT&amp;E</b>			
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> GA FOS	various	Systems Research & Applications Corp, Dayton Ohio						1.800	Jan-10	Continuing	TBD	TBD
Subtotal Product Development Remarks:			0.000	0.000		0.000		1.800		Continuing	TBD	TBD
(U) <u>Support</u>						0.000		0.000			0.000	0.000
Subtotal Support Remarks:			0.000	0.000		0.000		0.000		0.000	0.000	0.000
(U) <u>Test &amp; Evaluation</u> Integration and Certification	C/Various Project Order	Various 413 TS, Eglin AFB, FL						0.250	Jan-11	Continuing	TBD	TBD
Test Agency Support Subtotal Test & Evaluation Remarks:			0.000	0.000		0.000		0.900 1.150	Jan-11	Continuing Continuing	TBD TBD	TBD TBD
(U) <u>Management</u>											0.000	0.000
Subtotal Management Remarks:			0.000	0.000		0.000		0.000		0.000	0.000	0.000
(U) Total Cost			0.000	0.000		0.000		2.950		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

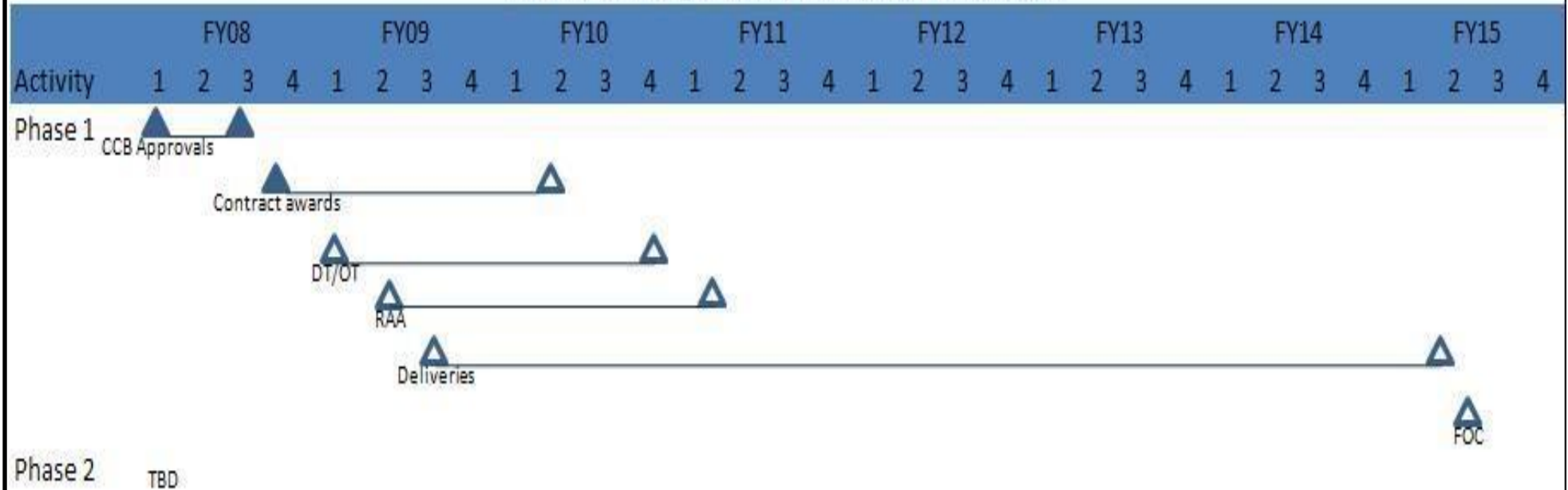
May 2009

BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0207227F Pararescue (Guardian Angel Weapon System)

PROJECT NUMBER AND TITLE  
5352 Guardian Angel RDT&E

Guardian Angel Weapon System Schedule



Schedule Notes

- Phase 1
- Projects have been assigned per Modification Proposals (AF 1067)
  - Numerous projects are being worked from start to finish of each event indicated above
  - Projects are executed independently and do not rely upon completion of all previous events
  - Test will be conducted to handle an acquisition incremental development approach
- Phase 2
- Awaiting final F-Study results and way ahead from ACC

Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207227F Pararescue (Guardian Angel Weapon System)

PROJECT NUMBER AND TITLE

5352 Guardian Angel RDT&E

(U) Schedule Profile

FY 2008

FY 2009

FY 2010

(U) Integration

1Q

(U) Test

3-4Q

1Q

1Q

(U) Multiple contract awards

4Q

1-4Q

1-4Q

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**UNCLASSIFIED**

PE NUMBER: 0207247F  
 PE TITLE: Air Force TENCAP

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0207247F Air Force TENCAP</b>
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	11.452	11.547	11.643	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
0001 Air Force TENCAP	11.452	11.547	11.643	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

**(U) A. Mission Description and Budget Item Justification**

Air Force TENCAP is executed by the Space Innovation and Development Center (SIDC) at Schriever Air Force Base, Colorado. Established by Congress in 1977 as one of a family of service Tactical Exploitation of National Capabilities (TENCAP) programs, AF TENCAP increases warfighter awareness of space and National capabilities, and promotes cross-domain integration of these systems into military and intelligence, surveillance and reconnaissance (ISR) operations through:

- 1) Exploiting existing Space, National and global ISR, and Non-Traditional ISR (NTISR) for operational and tactical applications by rapidly prototyping projects and demonstrating resulting capabilities. Capabilities will be transitioned to warfighters and/or National Intelligence Agencies for operational use, and/or appropriate acquisition organizations for further development.
- 2) Influencing the design and operation of future Space, National and global ISR, and NTISR systems for tactical users.
- 3) Providing education and training to warfighters and National Intelligence agencies.

The AF TENCAP Director administers and executes the AF TENCAP program. The Director coordinates and funds AF TENCAP efforts to provide robust capabilities that enhance support of Joint operations at the tactical level. The AF TENCAP Director is also a member of the Joint TENCAP Senior Officer Review Group (SORG).

This program is in Budget Activity 7, Operational System Development, because its efforts develop capabilities to leverage operational systems in order to increase the effectiveness of tactical warfighting activities.

**(U) B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	11.452	11.578	11.842
(U) Current PBR/President's Budget	11.452	11.547	11.643
(U) Total Adjustments	0.000	-0.031	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.031	
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer			
(U) <u>Significant Program Changes:</u>			
None			

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>					PE NUMBER AND TITLE <b>0207247F Air Force TENCAP</b>			PROJECT NUMBER AND TITLE <b>0001 Air Force TENCAP</b>		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
0001 Air Force TENCAP	11.452	11.547	11.643	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

Air Force TENCAP is executed by the Space Innovation and Development Center (SIDC) at Schriever Air Force Base, Colorado. Established by Congress in 1977 as one of a family of service Tactical Exploitation of National Capabilities (TENCAP) programs, AF TENCAP increases warfighter awareness of space and National capabilities, and promotes cross-domain integration of these systems into military and intelligence, surveillance and reconnaissance (ISR) operations through:

- 1) Exploiting existing Space, National and global ISR, and Non-Traditional ISR (NTISR) for operational and tactical applications by rapidly prototyping projects and demonstrating resulting capabilities. Capabilities will be transitioned to warfighters and/or National Intelligence Agencies for operational use, and/or appropriate acquisition organizations for further development.
- 2) Influencing the design and operation of future Space, National and global ISR, and NTISR systems for tactical users.
- 3) Providing education and training to warfighters and National Intelligence agencies.

The AF TENCAP Director administers and executes the AF TENCAP program. The Director coordinates and funds AF TENCAP efforts to provide robust capabilities that enhance support of Joint operations at the tactical level. The AF TENCAP Director is also a member of the Joint TENCAP Senior Officer Review Group (SORG).

This program is in Budget Activity 7, Operational System Development, because its efforts develop capabilities to leverage operational systems in order to increase the effectiveness of tactical warfighting activities.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Exploiting existing Space, National, and Global ISR, and Non-Traditional ISR (NTISR) for tactical applications by rapidly prototyping projects and demonstrating resulting capabilities and influencing the design and operation of future Space, National and global ISR, and NTISR systems for tactical users.	10.940	11.015	11.089
(U) Provide program support and other government support	0.512	0.532	0.554
(U) Total Cost	11.452	11.547	11.643

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Not applicable										

**(U) D. Acquisition Strategy**

Projects are selected for development based upon needs identified by the program's customers - DOD Departments, Combatant Commands, Components, MAJCOMs, and/or National Intelligence Agencies - and approved via the SIDC strategic planning process. Acquisition strategies for projects are chosen on a case-by-case basis for optimum results. Many projects are executed via existing contracts maintained by other agencies; others are executed via AF TENCAP contracts established with



**Exhibit R-2a, RDT&E Project Justification**

DATE

**May 2009**

BUDGET ACTIVITY

**07 Operational System Development**

PE NUMBER AND TITLE

**0207247F Air Force TENCAP**

PROJECT NUMBER AND TITLE

**0001 Air Force TENCAP**

vendors responding to annual Broad Area Announcements issued by SIDC. In all cases the U.S. government organization sponsoring a project is responsible for assuming acquisition, deployment, logistics, and budgetary responsibilities for the developed capability after it has been successfully demonstrated by AF TENCAP.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>07 Operational System Development</b>				<b>0207247F Air Force TENCAP</b>					<b>0001 Air Force TENCAP</b>			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> Exploiting existing systems through rapid-prototyping projects; influencing future systems; educating and training	Various	Various	220.212	10.940	Dec-07	11.015	Dec-08	11.089	Dec-09	Continuing	TBD	
Subtotal Product Development			220.212	10.940		11.015		11.089		Continuing	TBD	0.000
Remarks:												
(U) <u>Support</u> Program oversight	Various	Various	7.797	0.512	Dec-07	0.532	Dec-08	0.554	Dec-09	Continuing	TBD	
Subtotal Support			7.797	0.512		0.532		0.554		Continuing	TBD	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u> Not applicable											0.000	
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Management</u> Not applicable											0.000	
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			228.009	11.452		11.547		11.643		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0207247F Air Force TENCAP

PROJECT NUMBER AND TITLE  
0001 Air Force TENCAP



# Air Force TENCAP Schedule

Initial concepts identified for the next fiscal year

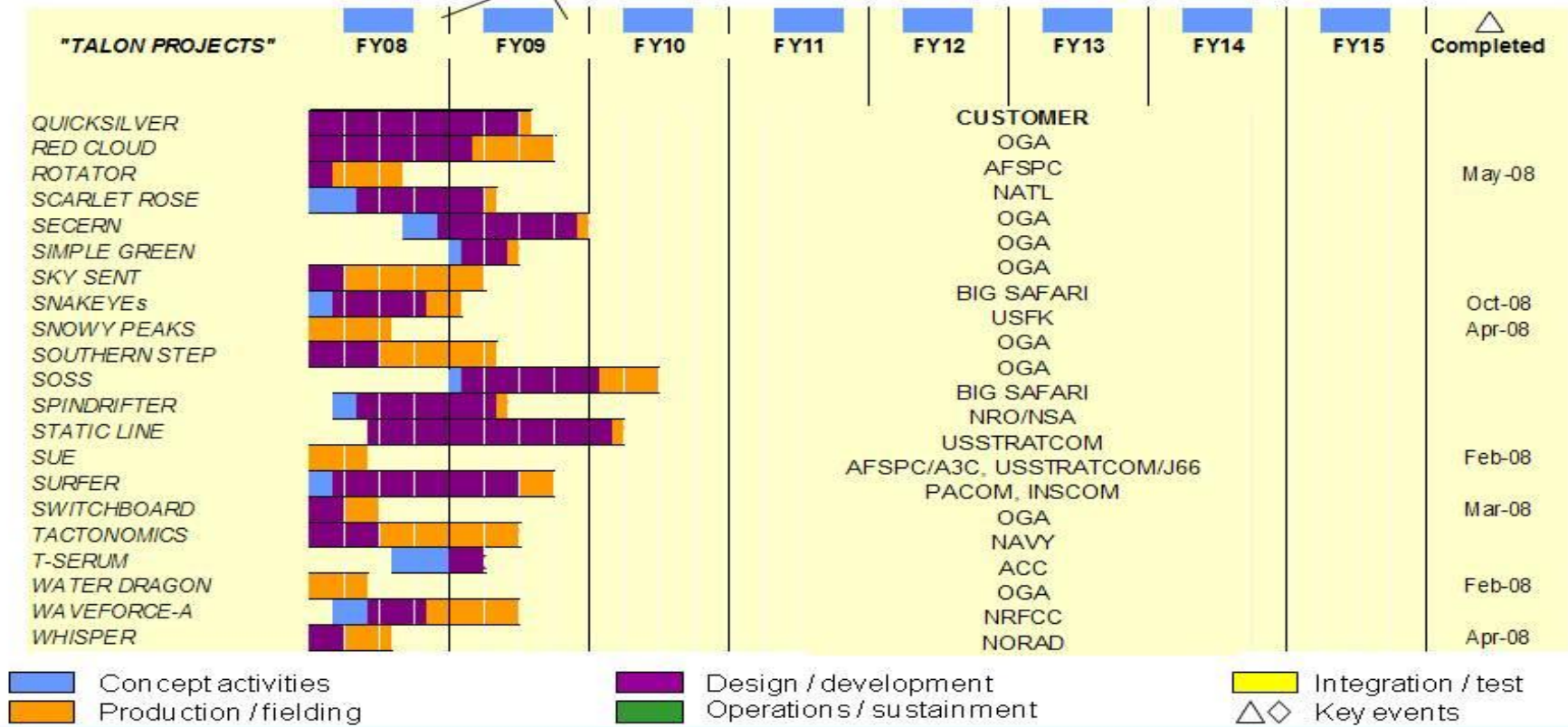


Exhibit R-4, RDT&E Schedule Profile

DATE  
May 2009

BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0207247F Air Force TENCAP

PROJECT NUMBER AND TITLE  
0001 Air Force TENCAP



# Air Force TENCAP Schedule

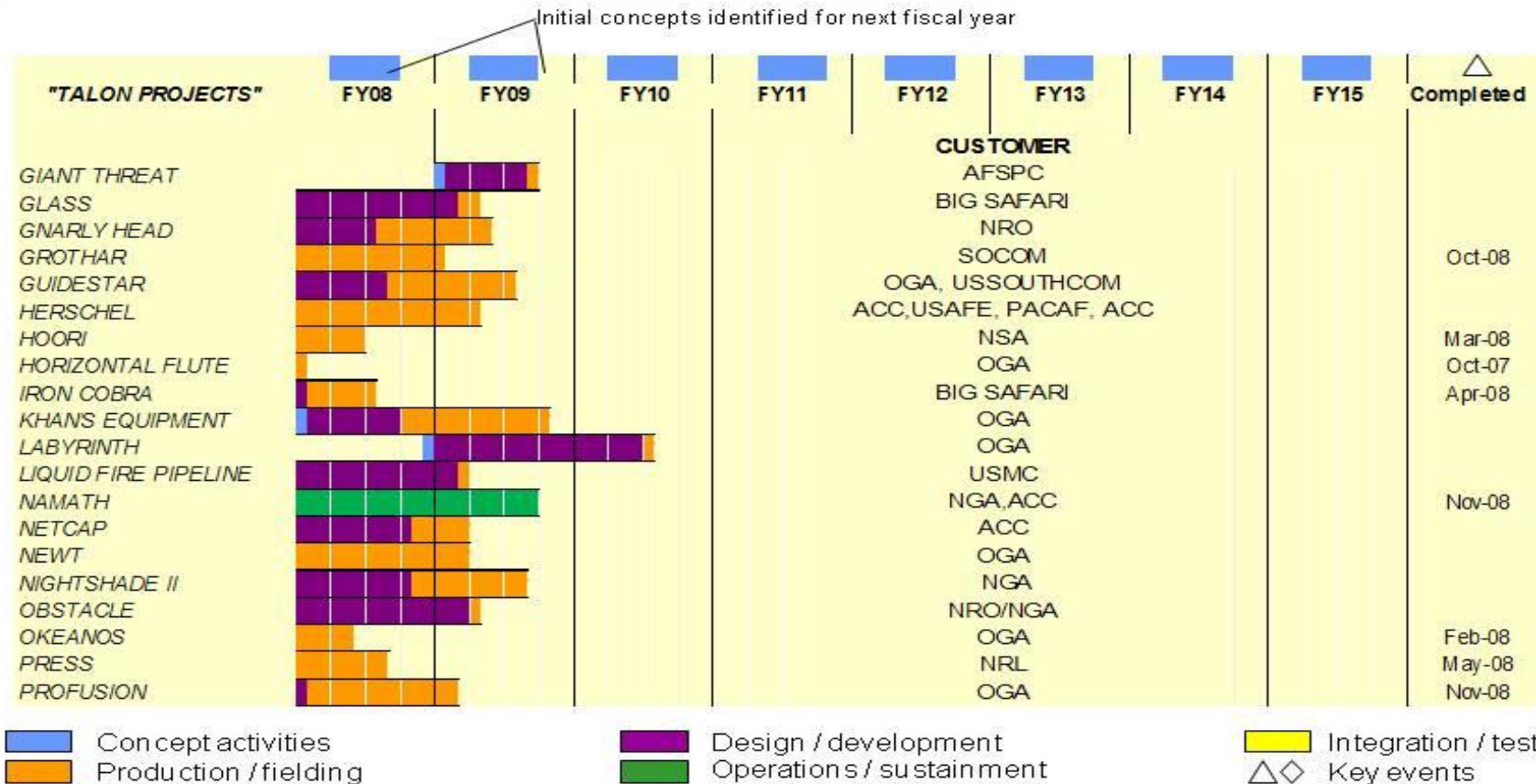


Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0207247F Air Force TENCAP

PROJECT NUMBER AND TITLE  
0001 Air Force TENCAP



# Air Force TENCAP Schedule

Initial concepts identified for the next fiscal year

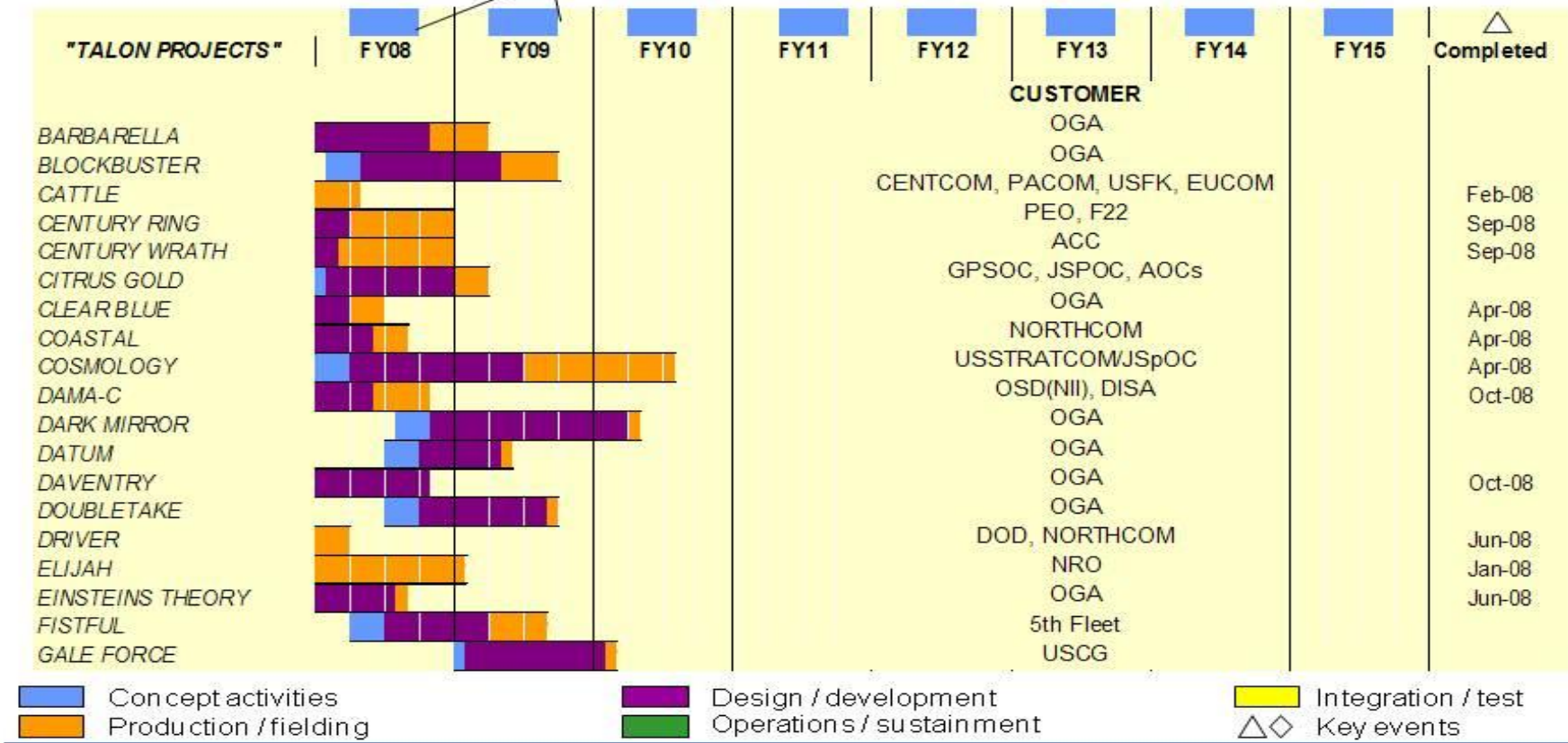


Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0207247F Air Force TENCAP</b>	PROJECT NUMBER AND TITLE <b>0001 Air Force TENCAP</b>
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(U) <b>Schedule Profile</b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) FY 2008 projects contracted	1Q		
(U) FY 2009 project concepts identified and approved	2-3Q		
(U) FY 2009 project contractor proposals requested/reviewed	2-4Q		
(U) FY 2009 projects approved for implementation	4Q		
(U) FY 2009 projects contracted		1Q	
(U) FY 2010 project concepts identified and approved		2-3Q	
(U) FY 2010 project contractor proposals requested/reviewed		2-4Q	
(U) FY 2010 projects approved for implementation		4Q	
(U) FY 2010 projects contracted			1Q
(U) FY 2011 project concepts identified and approved			2-3Q
(U) FY 2011 project contractor proposals requested/reviewed			2-4Q
(U) FY 2011 projects approved for implementation			4Q

Most project selection activities occur approximately per the timelines shown, but some projects are initiated on a rolling basis throughout each year in response to time-sensitive operational requirements.

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0207249F Precision Attack Systems</b>
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.000	0.000	2.950	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5347 Advanced Targeting Pod	0.000	0.000	2.950	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

In FY2010, Project 675347, Advanced Targeting Pod includes new start efforts.

**(U) A. Mission Description and Budget Item Justification**

This program was originally developed for the Low Altitude Navigation and Targeting Infrared for Night (LANTIRN) pod however all development for this program has been completed.

Advanced Targeting Pods (ATPs) provide long-range target acquisition and expanded weapon delivery envelopes for greater aircraft survivability. ATPs feature an infrared (IR) sensor, charged coupled device television (CCD-TV), laser designator, eye-safe laser, laser spot tracker, infrared marker, and real-time Video Data Link (VDL) for connectivity with ground forces. As non-developmental items, the majority of improvements to ATPs are the result of investments made by industry Internal Research and Development (IRAD). In addition to operational flight program (OFP) development, this funding provides for the development and integration of capabilities which are either above the capabilities of the industrial base or that require accelerated development timelines in order to meet operational requirements. Data-linking is one such area where there is an identified gap between industrial capabilities and operational requirements. Additional development efforts will be structured to support the documented ATP requirements as well as urgent operational needs (UONs) as they become known.

The Advanced Targeting Pod program is assigned budget activity (BA) code 07 because this developmental work upgrades an existing weapons system.

**(U) B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget			0.000
(U) Current PBR/President's Budget	0.000	0.000	3.000
(U) Total Adjustments	0.000	0.000	
(U) Congressional Program Reductions			
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer			

**(U) Significant Program Changes:**

FY10-FY11 funds added to Advanced Targeting Pod (BPAC 675347) for capability improvement and software development.



**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>							PE NUMBER AND TITLE <b>0207249F Precision Attack Systems</b>		PROJECT NUMBER AND TITLE <b>5347 Advanced Targeting Pod</b>	
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5347 Advanced Targeting Pod	0.000	0.000	2.950	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

In FY2010, Project 675347, Advanced Targeting Pod includes new start efforts.

**(U) A. Mission Description and Budget Item Justification**

This program was originally developed for the Low Altitude Navigation and Targeting Infrared for Night (LANTIRN) pod however all development for this program has been completed.

Advanced Targeting Pods (ATPs) provide long-range target acquisition and expanded weapon delivery envelopes for greater aircraft survivability. ATPs feature an infrared (IR) sensor, charged coupled device television (CCD-TV), laser designator, eye-safe laser, laser spot tracker, infrared marker, and real-time Video Data Link (VDL) for connectivity with ground forces. As non-developmental items, the majority of improvements to ATPs are the result of investments made by industry Internal Research and Development (IRAD). In addition to operational flight program (OFP) development, this funding provides for the development and integration of capabilities which are either above the capabilities of the industrial base or that require accelerated development timelines in order to meet operational requirements. Data-linking is one such area where there is an identified gap between industrial capabilities and operational requirements. Additional development efforts will be structured to support the documented ATP requirements as well as urgent operational needs (UONs) as they become known.

The Advanced Targeting Pod program is assigned budget activity (BA) code 07 because this developmental work upgrades an existing weapons system.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Technology Improvement and Operational Flight Program (OFP) Updates			2.850
(U) Flight Test			
(U) Mission Support, Other Government Cost			0.150
(U) Total Cost	0.000	0.000	3.000

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) APPN (PE 0207249F Precision Attack Systems Procurement)	161.865	121.228	53.610	173.705	120.679	78.339	79.904	81.502	Continuing	TBD

**(U) D. Acquisition Strategy**

Funds will primarily be executed in developing improved capability and maintenance mods. Operational Flight Program (OFP) software will be continuously updated to complement mod development efforts.



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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>07 Operational System Development</b>				<b>0207249F Precision Attack Systems</b>					<b>5347 Advanced Targeting Pod</b>			
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract</u> <u>Method &amp;</u> <u>Type</u>	<u>Performing</u> <u>Activity &amp;</u> <u>Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2008</u> <u>Cost</u>	<u>FY 2008</u> <u>Cost</u>	<u>FY 2008</u> <u>Award</u> <u>Date</u>	<u>FY 2009</u> <u>Cost</u>	<u>FY 2009</u> <u>Award</u> <u>Date</u>	<u>FY 2010</u> <u>Cost</u>	<u>FY 2010</u> <u>Award</u> <u>Date</u>	<u>Cost to</u> <u>Complete</u>	<u>Total Cost</u>	<u>Target Value</u> <u>of Contract</u>
(U) <u>Product Development</u> Technology Improvement & OFP Updates								2.850			2.850	TBD
Subtotal Product Development			0.000	0.000		0.000		2.850		0.000	2.850	TBD
Remarks:												
(U) <u>Support</u> Mission Support								0.100			0.100	
Subtotal Support			0.000	0.000		0.000		0.100		0.000	0.100	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u> Flight Test											0.000	
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Management</u> Program Management								0.050			0.050	
Subtotal Management			0.000	0.000		0.000		0.050		0.000	0.050	0.000
Remarks:												
(U) Total Cost			0.000	0.000		0.000		3.000		0.000	3.000	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0207249F Precision Attack Systems

PROJECT NUMBER AND TITLE  
5347 Advanced Targeting Pod

# Advanced Targeting Pod Technology Insertion Roadmap

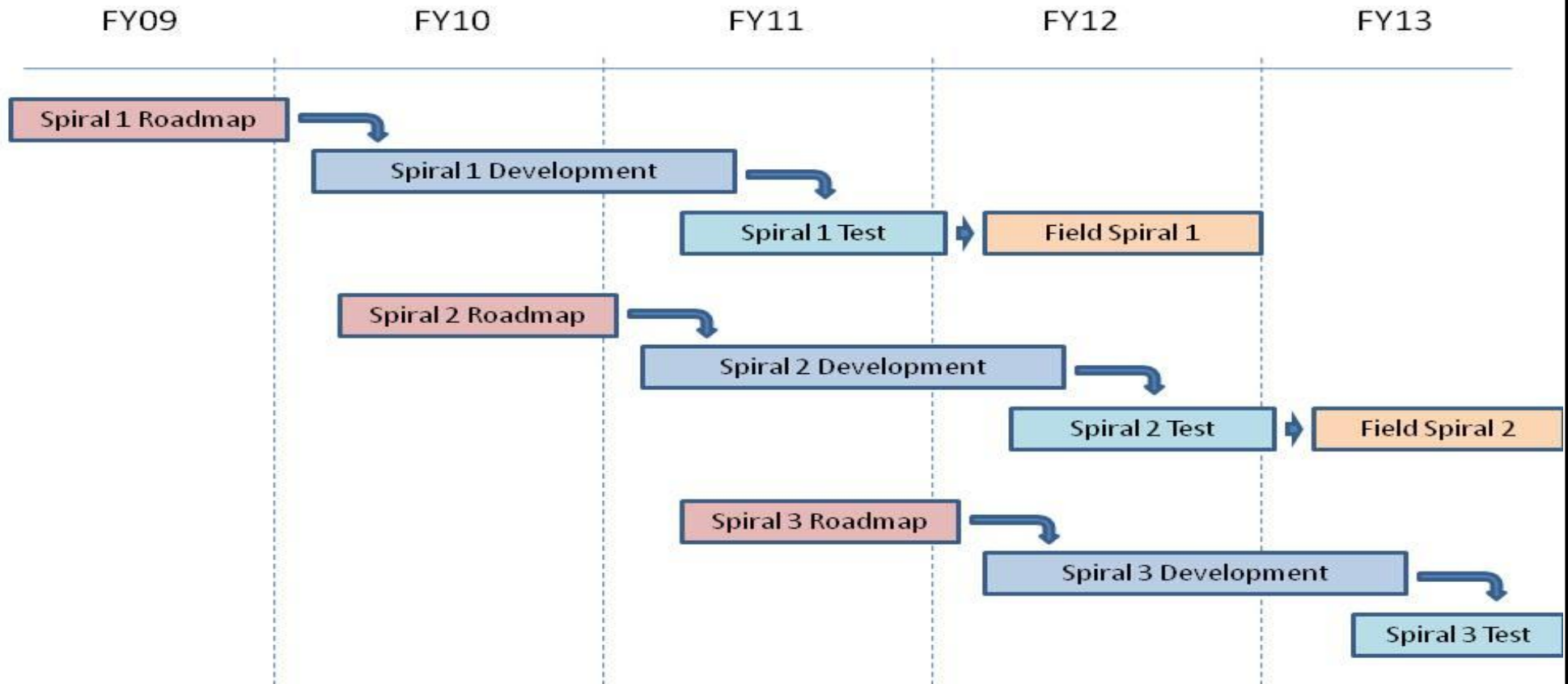


Exhibit R-4, RDT&E Schedule Profile

DATE

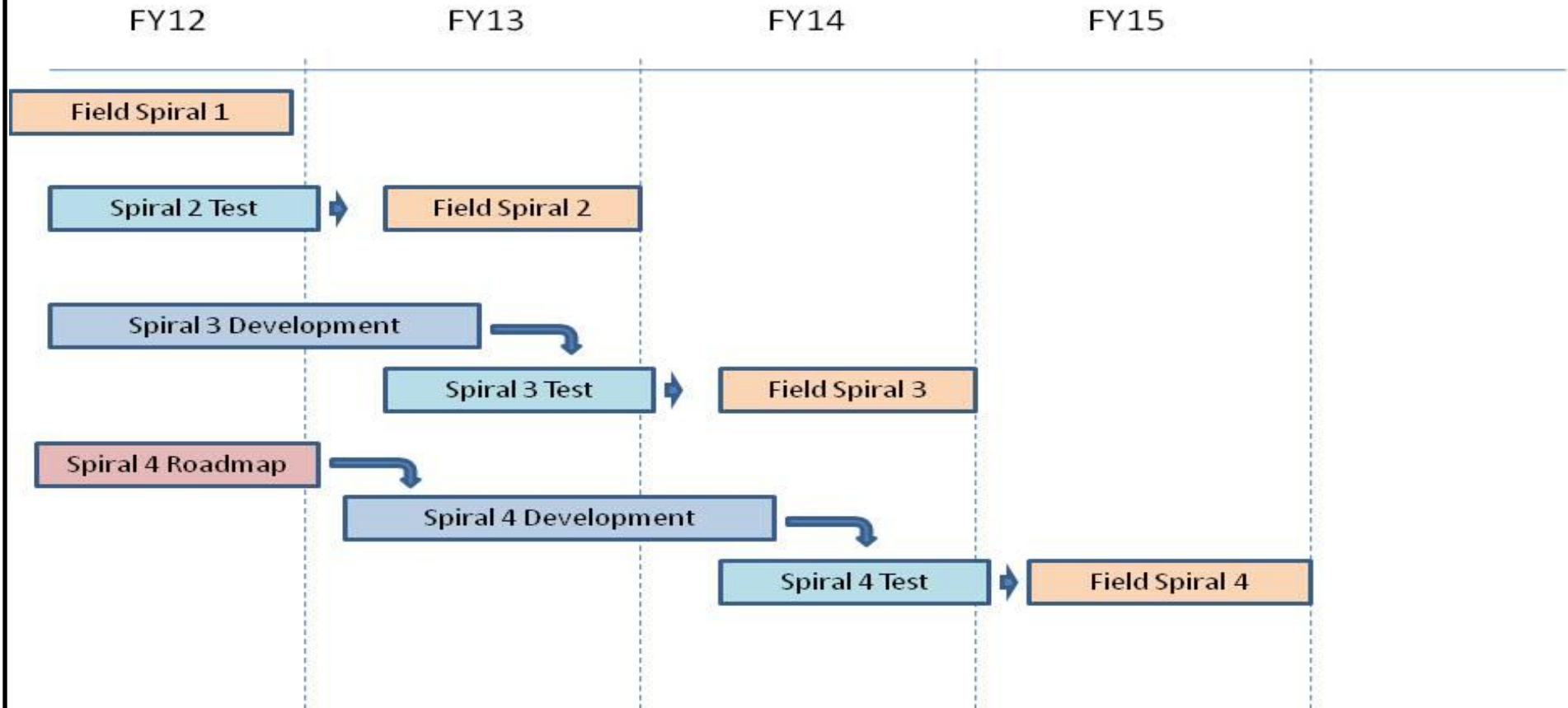
May 2009

BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0207249F Precision Attack Systems

PROJECT NUMBER AND TITLE  
5347 Advanced Targeting Pod

# Advanced Targeting Pod Technology Insertion Roadmap



<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>May 2009</b>
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BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0207249F Precision Attack Systems</b>	PROJECT NUMBER AND TITLE <b>5347 Advanced Targeting Pod</b>
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(U) <u>Schedule Profile</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) OFP Development, continuous			1-4Q

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0207253F Compass Call</b>
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	13.470	4.657	13.019	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
4804 Compass Call	13.470	4.657	13.019	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

**(U) A. Mission Description and Budget Item Justification**

The EC-130H COMPASS CALL is the USAF's wide-area, airborne Command and Control Warfare/Information Operations (C2W/IO) weapon system. It interdicts adversary use of the electronic battlespace and is a key active component in the information battlespace and global war on terror. EC-130H COMPASS CALL's sophisticated electronic combat system is capable of surgical denial or disruption of adversary radio frequency (RF) communications systems and sensors. The system was fielded in 1983 and to date has evolved through the Block 35/Baseline 1 configuration.

Due to the rapid advances in electronic technology, EC-130H COMPASS CALL was designed to be easily modified and must continue to modernize and evolve to keep pace with adversary tactics and technology. Continuous development is required to maintain battlespace superiority. EC-130H COMPASS CALL employs a spiral development and fielding strategy IAW AFD 63-1 that puts capability into the warfighters hands as soon as practical and ensures each iteration of the weapon system is effective against the highest priority threats. That process requires a steady stream of development funds.

Development funds are required to accomplish subsystem additions and improvements such as the digital signal analysis and exciter subsystem (AXE), the special purpose emitter array (SPEAR), the IED Defeat subsystem (NOVA), the human machine interface (HMI), network centric operations, phased array transmit and receive apertures and other classified hardware and software developments necessary to counter military and commercial communications evolutions, C2 and sensor developments.

Funding in FY10-15 is required to support RDT&E efforts for Baseline 2 (BL2) and Baseline 3 (BL3) upgrades to the EC-130H COMPASS CALL fleet. The BL2 and BL3 requirements have advanced significantly over the two previous baselines. The "Initial Perspectives" report from House Armed Services Committee's Panel on Roles and Missions (Jan 08) stated, "The Air Force must also address emerging shortfalls and readiness concerns in the COMPASS CALL program . . . it is important that the Air Force dedicate necessary funding to sustain the airframe and upgrade its mission and operating systems." BL2 and BL3 upgrades will help cover the electronic attack shortfall in the coming years. Obsolescence and diminishing manufacturing sources (DMS) are addressed with each baseline upgrade as well as annually as part of the sustainment responsibilities. Activities also include studies and analysis to support both current program planning and execution and future program planning.

This program will participate in the development, testing, and implementation of international standards (to include NATO standardization agreements) to pursue joint, allied, and coalition interoperability.

This program is categorized as Budget Activity 7, Operational Systems Development, because it provides for development of technologies necessary to field essential operational capabilities.

Exhibit R-2, RDT&E Budget Item Justification

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207253F Compass Call

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	8.549	4.670	13.242
(U) Current PBR/President's Budget	13.470	4.657	13.019
(U) Total Adjustments	4.921	-0.013	
(U) Congressional Program Reductions		-0.013	
Congressional Rescissions			
Congressional Increases	5.161		
Reprogrammings			
SBIR/STTR Transfer	-0.240		
(U) <u>Significant Program Changes:</u>			
FY2008 funding total includes \$5.161M in supplemental funding			

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

May 2009

BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE		
<b>07 Operational System Development</b>				<b>0207253F Compass Call</b>				<b>4804 Compass Call</b>		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
4804 Compass Call	13.470	4.657	13.019	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) **A. Mission Description and Budget Item Justification**

The EC-130H COMPASS CALL is the USAF's wide-area, airborne Command and Control Warfare/Information Operations (C2W/IO) weapon system. It interdicts adversary use of the electronic battlespace and is a key active component in the information battlespace and global war on terror. EC-130H COMPASS CALL's sophisticated electronic combat system is capable of surgical denial or disruption of adversary radio frequency (RF) communications systems and sensors. The system was fielded in 1983 and to date has evolved through the Block 35/Baseline 1 configuration.

Due to the rapid advances in electronic technology, EC-130H COMPASS CALL was designed to be easily modified and must continue to modernize and evolve to keep pace with adversary tactics and technology. Continuous development is required to maintain battlespace superiority. EC-130H COMPASS CALL employs a spiral development and fielding strategy IAW AFPD 63-1 that puts capability into the warfighters hands as soon as practical and ensures each iteration of the weapon system is effective against the highest priority threats. That process requires a steady stream of development funds.

Development funds are required to accomplish subsystem additions and improvements such as the digital signal analysis and exciter subsystem (AXE), the special purpose emitter array (SPEAR), the IED Defeat subsystem (NOVA), the human machine interface (HMI), network centric operations, phased array transmit and receive apertures and other classified hardware and software developments necessary to counter military and commercial communications evolutions, C2 and sensor developments.

Funding in FY10-15 is required to support RDT&E efforts for Baseline 2 (BL2) and Baseline 3 (BL3) upgrades to the EC-130H COMPASS CALL fleet. The BL2 and BL3 requirements have advanced significantly over the two previous baselines. The "Initial Perspectives" report from House Armed Services Committee's Panel on Roles and Missions (Jan 08) stated, "The Air Force must also address emerging shortfalls and readiness concerns in the COMPASS CALL program . . . it is important that the Air Force dedicate necessary funding to sustain the airframe and upgrade its mission and operating systems." BL2 and BL3 upgrades will help cover the electronic attack shortfall in the coming years. Obsolescence and diminishing manufacturing sources (DMS) are addressed with each baseline upgrade as well as annually as part of the sustainment responsibilities. Activities also include studies and analysis to support both current program planning and execution and future program planning.

This program will participate in the development, testing, and implementation of international standards (to include NATO standardization agreements) to pursue joint, allied, and coalition interoperability.

This program is categorized as Budget Activity 7, Operational Systems Development, because it provides for development of technologies necessary to field essential operational capabilities.

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0207253F Compass Call</b>	<b>PROJECT NUMBER AND TITLE</b> <b>4804 Compass Call</b>
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<b>(U) B. Accomplishments/Planned Program (\$ in Millions)</b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) FY08 Congressional Add: Network centric information operations improvements	4.000	0.000	0.000
(U) Development, integration and test of Network Centric Operations and Reachback Connectivity Capability	0.000	0.520	1.052
(U) FY08 GWOT Supplemental: Develop Block 35/Baseline 0 Upgrade to COMPASS CALL Mission Crew Simulator (CCMCS)	5.161	0.000	0.000
(U) Development, integration, and test of classified techniques and electronic attack infrastructure (Special Purpose Emitter Array, a.k.a. SPEAR)	0.643	0.800	1.069
(U) Development, integration, and test of Digital Signal Acquisition and Analysis Subsystem and the Digital Exciter Subsystem	0.806	1.148	1.345
(U) Integration and test of Block 35/Baseline 1 Human Machine Interface (HMI)	0.660	0.589	0.700
(U) Development, integration and test of Commercial Band Phased Array New Target Development	1.000	1.100	1.300
(U) Development, integration and test of Advanced Commercial and Military Communications, Counter Radar and Counter Satellite Navigation Techniques, and Target Development	1.200	0.500	2.210
(U) Baseline 2 Development	0.000	0.000	5.343
(U) Total Cost	13.470	4.657	13.019

Activities also include studies and analysis to support both current program planning and execution and future program planning.

<b>(U) C. Other Program Funding Summary (\$ in Millions)</b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to Complete</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>		
(U) PE 0207253F, APAF	65.215	36.942	47.223						Continuing	TBD
(U) PE 0207253F, O&M	200.194	96.963	257.552						Continuing	TBD

**(U) D. Acquisition Strategy**  
 EC-130H COMPASS CALL baseline / incremental upgrades and quick reaction capabilities (QRC) developments are acquired through the 645th Aeronautical Systems Group (AESG -- BIG SAFARI Program Office) in accordance with the Program Management Directive (PMD) for BIG SAFARI Programs, and the BIG SAFARI Class Justification and Approval (J&A) document for acquisition of supplies and services using other than full and open competition. The supplies and services procured by 645th AESG under their J&A to satisfy National Security (FAR 6.302-6) or Unusual and Compelling Urgency (FAR 6.302-2) requirements include the full range of system life cycle management support (LCMP) from developmental engineering to system retirement. Due to the rapidly changing threat environment of the long Overseas Contingency Operations (OCO), the acquisition program manager has the authority to redirect funding as necessary to meet the requirements.



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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>07 Operational System Development</b>				<b>0207253F Compass Call</b>					<b>4804 Compass Call</b>			
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> COMPASS CALL RDT&E	SS/FFP&C PFF	BAE Systems, Nashua NH	4.000	9.260	Dec-07	0.000		7.676	Dec-09	Continuing	TBD	TBD
Subtotal Product Development			4.000	9.260		0.000		7.676		Continuing	TBD	TBD
Remarks:												
(U) <u>Test &amp; Evaluation</u>				0.000		0.000		0.000			0.000	0.000
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Primary Mission Equipment</u> COMPASS CALL RDT&E	CPFF	BAE Systems, Nashua NH	4.549	4.210	Dec-07	4.657	Dec-08	5.343	Dec-09	Continuing	TBD	TBD
Subtotal Primary Mission Equipment			4.549	4.210		4.657		5.343		Continuing	TBD	TBD
Remarks:												
(U) Total Cost			8.549	13.470		4.657		13.019		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE  
May 2009

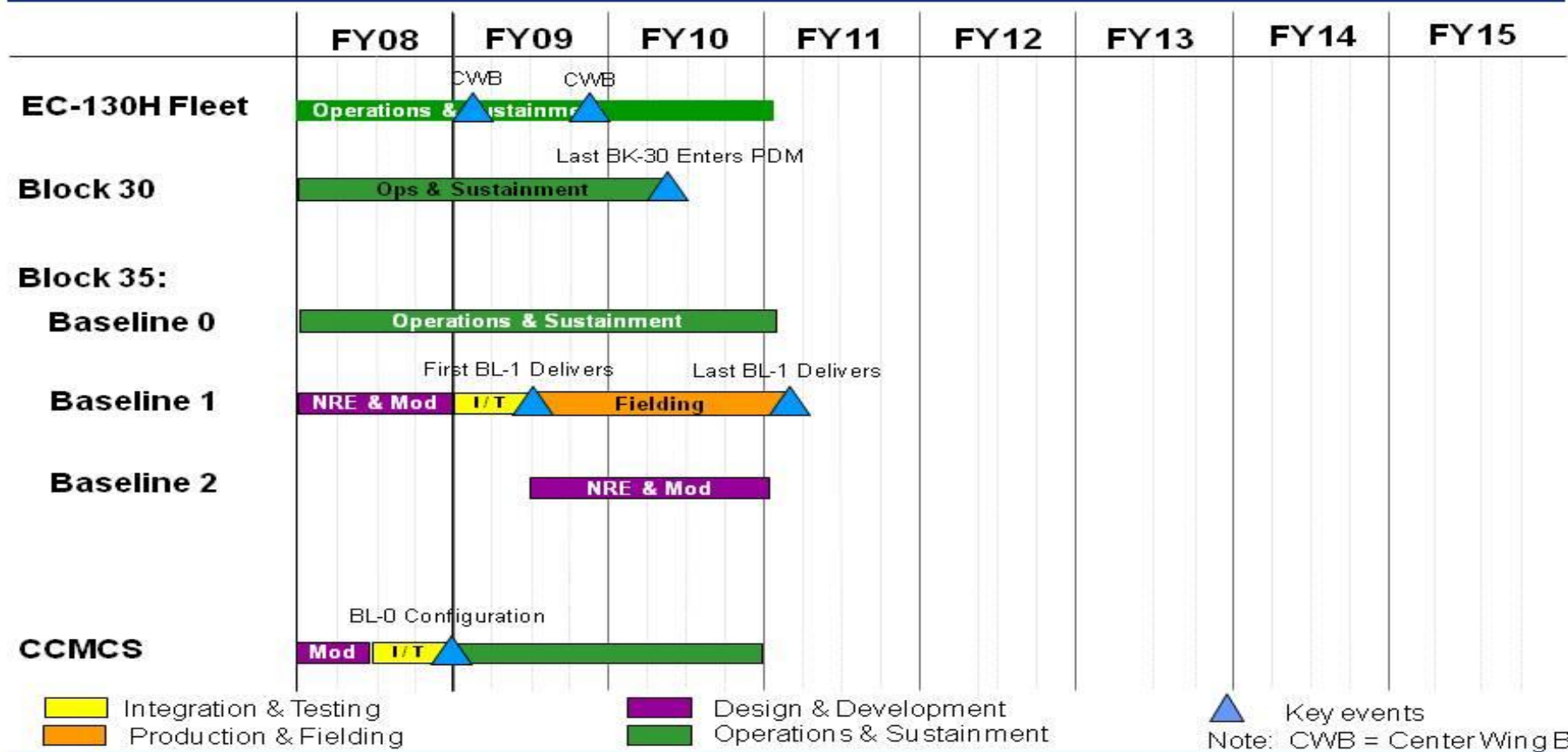
BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0207253F Compass Call

PROJECT NUMBER AND TITLE  
4804 Compass Call



# EC-130H COMPASS CALL Schedule



FY10 PB

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**Exhibit R-4a, RDT&E Schedule Detail**

DATE

**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0207253F Compass Call</b>	PROJECT NUMBER AND TITLE <b>4804 Compass Call</b>
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(U) <b>Schedule Profile</b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Baseline 1 Sub-System Additions and Emerging Technologies Enhanced Targeting Techniques Development / Integration	1-4Q	1-2Q	
(U) Baseline 2 Sub-System Additions and Emerging Technologies Enhanced Targeting Techniques Development / Integration		3-4Q	1-4Q
(U) Compass Call Mission Crew Simulator (CCMCS) Baseline Operating System and Sub-Systems Modification / Upgrades	1-4Q		

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PE NUMBER: 0207268F

PE TITLE: Aircraft Engine Component Improvement Program (CIP)

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0207268F Aircraft Engine Component Improvement Program (CIP)</b>
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	158.560	150.547	166.563	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
1012 Aircraft Engine Component Improvement Program	158.560	150.547	154.765	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5365 Aircraft Engine Component Improvement Program (F135)	0.000	0.000	11.798	0.000	0.000	0.000	0.000	0.000	0.000	0.000

FY 2008 - funding includes \$14.744M approved in supplemental.

FY 2010 - Project 675365 is new in FY10 to provide enhanced funds tracking and accountability for the F135 engine (F-35). Previously, all Engine CIP work was accomplished entirely within Project 671012.

**(U) A. Mission Description and Budget Item Justification**

The Aircraft Engine Component Improvement Program (CIP) provides the only source of critical sustaining engineering support for in-service Air Force engines to maintain flight safety (highest priority), to correct service revealed deficiencies, to improve system operational readiness (OR) and reliability & maintainability (R&M), to reduce engine Life Cycle Cost (LCC), and to sustain engines throughout their service life. Historically, aircraft systems change missions, tactics, and environments (including new fuels) to meet changing threats throughout their lives. New technical problems can develop in the engines through actual use and Engine CIP provides the means to develop fixes for these field problems. Engine CIP funding is driven by field events and types/maturity of engines, not by the total engine quantity. The program starts with delivery of the first production engine purchased with procurement funds, and continues over the engine's life, gradually decreasing to a minimum level (safety/depot repairs) sufficient to keep older inventory engines operational. Engine CIP, through "Lead the Fleet" operational use and accelerated mission testing, finds and fixes engine-related problems ahead of operational impacts. Engine CIP addresses out-of-warranty usage/life and enables the Air Force to obtain additional warranties when manufacturers incorporate Engine CIP improvements into production engines. Engine CIP ensures continued improvements in engine R&M factors, which reduce out year support costs. Historically, R&M related Engine CIP efforts significantly reduce out year Operations and Maintenance (O&M) and spares costs. Without the engine CIP out year support funding would have to be significantly increased.

This program is in Budget Activity 7 - Operational System Development, because all efforts support fielded systems.

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207268F Aircraft Engine Component Improvement Program (CIP)

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	138.159	150.956	162.111
(U) Current PBR/President's Budget	158.560	150.547	166.563
(U) Total Adjustments	20.401	-0.409	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.409	
Congressional Increases	14.744		
Reprogrammings	9.500		
SBIR/STTR Transfer	-3.843		

(U) **Significant Program Changes:**

Engine CIP FY 2008 Supplemental provided increase of \$14.744M. Miscellaneous reprogrammings of \$9.5M in FY08 included alternative fuels testing effort prior to the start-up of the new Alternative Fuels PE (0604796F) in FY09.

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>				<b>PE NUMBER AND TITLE</b> <b>0207268F Aircraft Engine Component Improvement Program (CIP)</b>				<b>PROJECT NUMBER AND TITLE</b> <b>1012 Aircraft Engine Component Improvement Program</b>		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
1012 Aircraft Engine Component Improvement Program	158.560	150.547	154.765	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

FY 2008 funding total includes \$14.744M in supplemental funding.

**(U) A. Mission Description and Budget Item Justification**

The Aircraft Engine Component Improvement Program (CIP) provides the only source of critical sustaining engineering support for in-service Air Force engines to maintain flight safety (highest priority), to correct service revealed deficiencies, to improve system operational readiness (OR) and reliability & maintainability (R&M), to reduce engine Life Cycle Cost (LCC), and to sustain engines throughout their service life. Historically, aircraft systems change missions, tactics, and environments (including new fuels) to meet changing threats throughout their lives. New technical problems can develop in the engines through actual use and Engine CIP provides the means to develop fixes for these field problems. Engine CIP funding is driven by field events and types/maturity of engines, not by the total engine quantity. The program starts with delivery of the first production engine purchased with procurement funds, and continues over the engine's life, gradually decreasing to a minimum level (safety/depot repairs) sufficient to keep older inventory engines operational. Engine CIP, through "Lead the Fleet" operational use and accelerated mission testing, finds and fixes engine-related problems ahead of operational impacts. Engine CIP addresses out-of-warranty usage/life and enables the Air Force to obtain additional warranties when manufacturers incorporate Engine CIP improvements into production engines. Engine CIP ensures continued improvements in engine R&M factors, which reduce out year support costs. Historically, R&M related Engine CIP efforts significantly reduce out year Operations and Maintenance (O&M) and spares costs. Without the Engine CIP out year support funding would have to be significantly increased.

This program is in Budget Activity 7 - Operational System Development, because all efforts support fielded systems.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Continuing Engine CIP tasks (such as, but not limited to, safety, improvement, support equipment, and repair tasks)	133.911	121.124	124.709
(U) Continuing engine testing (such as, but not limited to, altitude, sea level, and flight tests)	22.317	26.336	27.890
(U) Continuing mission support	2.332	3.087	2.166
(U) Total Cost	158.560	150.547	154.765

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	

(U) Other APPN

**RELATED ACTIVITIES:**

(U) - PEs # 0604268A and #0604268N, Army/Navy Aircraft Engine CIPs for prior to FY 1996

(U) - PEs # 0203752A and #0205633N, Army/Navy Aircraft Engine CIPs for FY 1996-present

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>		DATE <b>May 2009</b>
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BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0207268F Aircraft Engine Component Improvement Program (CIP)</b>	PROJECT NUMBER AND TITLE <b>1012 Aircraft Engine Component Improvement Program</b>
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(U) **D. Acquisition Strategy**  
 Contracts within this Program Element are awarded sole source to engine manufacturers. Engine CIP tasks are generally assigned to original engine manufacturers based on available funding and prioritization of candidate tasks.



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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE  
**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE						PROJECT NUMBER AND TITLE		
<b>07 Operational System Development</b>				<b>0207268F Aircraft Engine Component Improvement Program (CIP)</b>						<b>1012 Aircraft Engine Component Improvement Program</b>		
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2008 Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date	Cost to Complete	Total Cost	Target Value of Contract
(U) <u>Product Development</u>												
GE-Evendale, OH	CPAF	Evendale, OH		38.308	Jan-08	34.500	Jan-09	36.653	Jan-10	Continuing	TBD	
Pratt & Whitney	CPAF	Hartford, CT		70.592	Jan-08	72.426	Jan-09	74.213	Jan-10	Continuing	TBD	
GE-Lynn, MA	CPFF	Lynn, MA		6.770	Jan-08	7.429	Jan-09	7.747	Jan-10	Continuing	TBD	
Rolls Royce/Allison	CPFF	Indianapolis, IN		2.607	Jan-08	3.298	Jan-09	2.870	Jan-10	Continuing	TBD	
Teledyne	CPFF	Toledo, OH		0.030	Jan-08	0.000	Jan-09	0.034	Jan-10	Continuing	TBD	
Honeywell	CPFF	Phoenix, AZ		2.294	Jan-08	2.903	Jan-09	3.027	Jan-10	Continuing	TBD	
Williams International	CPFF	Walled Lake, MI		0.150		0.159	Jan-09	0.165	Jan-10	Continuing	TBD	
Subtotal Product Development			0.000	120.751		120.715		124.709		Continuing	TBD	0.000
Remarks:												
(U) <u>Support</u>												
In House Support/ Misc				2.332	Oct-07	3.087	Oct-08	2.166	Oct-09	Continuing	TBD	
Subtotal Support			0.000	2.332		3.087		2.166		Continuing	TBD	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
AF Flight Test Center - Edwards AFB, CA		Edwards AFB, CA	0.000	0.000	Jan-08	0.000		0.000		Continuing	TBD	
Arnold Engineering Development Center - Arnold AFB, TN		Arnold AFB, TN		28.896		15.726	Oct-08	16.399	Oct-09	Continuing	TBD	
NASA Glenn		Cleveland, OH	0.000	0.000	Jan-08	0.000		0.000		Continuing	TBD	
Fuel		N/A		6.581		11.019	Oct-08	11.491	Oct-09	Continuing	TBD	
Subtotal Test & Evaluation			0.000	35.477		26.745		27.890		Continuing	TBD	0.000
Remarks:												
(U) Total Cost			0.000	158.560		150.547		154.765		Continuing	TBD	0.000
Footnote:												

Prior years have included fuel costs with the applicable contractors. Fuel to support Test & Evaluation is now broken out as a separate line item.

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207268F Aircraft Engine Component Improvement Program (CIP)

PROJECT NUMBER AND TITLE

1012 Aircraft Engine Component Improvement Program

Not applicable. Engine CIP is a continuing engineering support program that funds 300-350 separate tasks per year.

Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207268F Aircraft Engine Component Improvement Program (CIP)

PROJECT NUMBER AND TITLE

1012 Aircraft Engine Component Improvement Program

(U) Schedule Profile

FY 2008

FY 2009

FY 2010

(U) Not applicable. Engine CIP is a continuing sustaining engineering support program that annually funds between 300-350 separate tasks per year.

1-4Q

1-4Q

1-4Q

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>				<b>PE NUMBER AND TITLE</b> <b>0207268F Aircraft Engine Component Improvement Program (CIP)</b>				<b>PROJECT NUMBER AND TITLE</b> <b>5365 Aircraft Engine Component Improvement Program (F135)</b>		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5365 Aircraft Engine Component Improvement Program (F135)	0.000	0.000	11.798	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

Project 675365 is new in FY10 to provide enhanced funds tracking and accountability for the F135 engine (F-35).

**(U) A. Mission Description and Budget Item Justification**

The Aircraft Engine Component Improvement Program (F135) supports the F-135 engine (F-35). It provides the only source of critical sustaining engineering support for in-service Air Force engines to maintain flight safety (highest priority), to correct service revealed deficiencies, to improve system operational readiness (OR) and reliability & maintainability (R&M), to reduce engine Life Cycle Cost (LCC), and to sustain engines throughout their service life. Historically, aircraft systems change missions, tactics, and environments (including new fuels) to meet changing threats throughout their lives. New technical problems can develop in the engines through actual use and Engine CIP (F135) provides the means to develop fixes for these field problems. Engine CIP (F135) funding is driven by field events and types/maturity of engines, not by the total engine quantity. The program starts with delivery of the first production engine purchased with procurement funds, and continues over the engine's life, gradually decreasing to a minimum level (safety/depot repairs) sufficient to keep older inventory engines operational. Engine CIP (F135), through "Lead the Fleet" operational use and accelerated mission testing, finds and fixes engine-related problems ahead of operational impacts. Engine CIP (F135) addresses out-of-warranty usage/life and enables the Air Force to obtain additional warranties when manufacturers incorporate Engine CIP improvements into production engines. Engine CIP (F135) ensures continued improvements in engine R&M factors, which reduce out year support costs. Historically, R&M related Engine CIP efforts significantly reduce out year Operations and Maintenance (O&M) and spares costs. Without the Engine CIP out year support funding would have to be significantly increased.

This program is in Budget Activity 7 - Operational System Development, because all efforts support fielded F135 engine systems.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Continuing Engine CIP (F135) tasks (such as, but not limited to, safety, improvement, support equipment, and repair tasks)	0.000	0.000	11.633
(U) Continuing engine testing (such as, but not limited to, altitude, sea level, and flight tests)	0.000	0.000	0.000
(U) Continuing mission support	0.000	0.000	0.165
(U) Total Cost	0.000	0.000	11.798

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	Actual	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Complete	

**(U) OTHER APPN**

Program Element 0205633N provides US Navy funding support of the F135 (F-35).

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207268F Aircraft Engine Component  
Improvement Program (CIP)

PROJECT NUMBER AND TITLE

5365 Aircraft Engine Component  
Improvement Program (F135)(U) D. Acquisition Strategy

Contracts within this Program Element are awarded sole source to engine manufacturers. Engine CIP (F135) tasks are generally assigned to original engine manufacturers based on available funding and prioritization of candidate tasks.

Exhibit R-3, RDT&E Project Cost Analysis

DATE

May 2009

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>07 Operational System Development</b>				<b>0207268F Aircraft Engine Component Improvement Program (CIP)</b>					<b>5365 Aircraft Engine Component Improvement Program (F135)</b>			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2008 Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date	Cost to Complete	Total Cost	Target Value of Contract
(U) <u>Product Development</u>												
Pratt & Whitney	CPAF	Hartford, CT						11.633	Jan-10	Continuing	TBD	
Subtotal Product Development			0.000	0.000		0.000		11.633		Continuing	TBD	0.000
Remarks:												
(U) <u>Support</u>												
In House Support/ Misc								0.165	Oct-09	Continuing	TBD	
Subtotal Support			0.000	0.000		0.000		0.165		Continuing	TBD	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		Continuing	TBD	0.000
Remarks:												
(U) <u>Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000		Continuing	TBD	0.000
Remarks:												
(U) Total Cost			0.000	0.000		0.000		11.798		Continuing	TBD	0.000
Footnote: Project 675365 is new in FY10 to provide enhanced funds tracking and accountability for the F135 engine (F-35).												

## Exhibit R-4, RDT&amp;E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207268F Aircraft Engine Component  
Improvement Program (CIP)

PROJECT NUMBER AND TITLE

5365 Aircraft Engine Component  
Improvement Program (F135)

Not applicable. Engine CIP (F135) is a continuing sustaining engineering support program that funds between 10-30 tasks in FY 2010 and increasing to 100-150 tasks beginning FY 2011 through the FYDP

<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>May 2009</b>
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BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0207268F Aircraft Engine Component Improvement Program (CIP)</b>	PROJECT NUMBER AND TITLE <b>5365 Aircraft Engine Component Improvement Program (F135)</b>
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(U) <b><u>Schedule Profile</u></b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Not applicable. Engine CIP (F135) is a continuing sustaining engineering support program that will fund between 10-30 separate tasks in FY 2010 and 100-150 tasks through the FYDP beginning FY 2011.	1-4Q	1-4Q	1-4Q



**UNCLASSIFIED**

PE NUMBER: 0207277F  
 PE TITLE: Chief's Innovation Program

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>May 2009</b>
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BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0207277F Chief's Innovation Program</b>
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.000	0.000	4.621	0.000	0.000	0.000	0.000	0.000	0.000	0.000
5373 ISR Innovations Program	0.000	0.000	4.621	0.000	0.000	0.000	0.000	0.000	0.000	0.000

**(U) A. Mission Description and Budget Item Justification**

Eagle Vision is a deployable ground station for programming and collecting panchromatic, multispectral, and synthetic aperture radar broad-area imagery from commercial earth remote sensing satellites and processing/merging it with national imagery for mission planning, topographic analysis, and intelligence-gathering purposes. The AF has an operational Eagle Vision system at Ramstein AFB, GE and the ANG has an operational system at Nevada ANG, Reno, NV, one at South Carolina ANG, McEntire ANG, SC, one at Hawaii ANG, Hickam AFB, HI, and one is being procured for the Alabama ANG. Program is in Budget Activity 7 because it provides for the development of technologies and capabilities in support of operational system development.

**(U) B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget			
(U) Current PBR/President's Budget	0.000	0.000	4.621
(U) Total Adjustments	0.000	0.000	
(U) Congressional Program Reductions			
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer			
(U) <u>Significant Program Changes:</u>			
Support for FMV enhancements initiated during FY2009.			

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>					PE NUMBER AND TITLE <b>0207277F Chief's Innovation Program</b>			PROJECT NUMBER AND TITLE <b>5373 ISR Innovations Program</b>		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5373 ISR Innovations Program	0.000	0.000	4.621	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

Eagle Vision is a deployable ground station for programming and collecting panchromatic, multispectral, and synthetic aperture radar broad-area imagery from commercial earth remote sensing satellites and processing/merging it with national imagery for mission planning, topographic analysis, and intelligence-gathering purposes. The AF has an operational Eagle Vision system at Ramstein AFB, GE and the ANG has an operational system at Nevada ANG, Reno, NV, one at South Carolina ANG, McEntire ANG, SC, one at Hawaii ANG, Hickam AFB, HI, and one is being procured for the Alabama ANG. Program is in Budget Activity 7 because it provides for the development of technologies and capabilities in support of operational system development.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Intelligence Surveillance Reconnaissance (ISR) Development			4.621
(U)			
(U)			
(U) Total Cost	0.000	0.000	4.621

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Advanced Comm System, Other Procurement, AF PE 0207423F			10.500							

**(U) D. Acquisition Strategy**

A Sole Source contract through 645 AESG Justification and Approval (J&A) utilizing and existing Basic Order Agreement (BOA) with L3 Communications West.

UNCLASSIFIED

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>07 Operational System Development</b>				<b>0207277F Chief's Innovation Program</b>					<b>5373 ISR Innovations Program</b>			
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> Sys Engr., Planning & Development	SS/FFP	L3 Communications West, Salt Lake, Utah						4.621	Oct-09		4.621	
Subtotal Product Development			0.000	0.000		0.000		4.621		0.000	4.621	0.000
Remarks:												
(U) <u>Support</u>											0.000	
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>											0.000	
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Management</u>											0.000	
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			0.000	0.000		0.000		4.621		0.000	4.621	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207277F Chief's Innovation Program

PROJECT NUMBER AND TITLE

5373 ISR Innovations Program

ISR Development and Integration

	FY08					FY09					FY10			
	<u>1Q</u>	<u>2Q</u>	<u>3Q</u>	<u>4Q</u>		<u>1Q</u>	<u>2Q</u>	<u>3Q</u>	<u>4Q</u>		<u>1Q</u>	<u>2Q</u>	<u>3Q</u>	<u>4Q</u>
Contract Award											▲			
Sys Eng, Plnng, Intgr.											▲			▲

<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>May 2009</b>
--	-------------------------

BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0207277F Chief's Innovation Program</b>	PROJECT NUMBER AND TITLE <b>5373 ISR Innovations Program</b>
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(U) <b><u>Schedule Profile</u></b> (U) System Engineering Planning & Integration	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u> 1-4Q
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PE NUMBER: 0207325F

PE TITLE: Joint Air-to-Surface Standoff Missile (JASSM)

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0207325F Joint Air-to-Surface Standoff Missile (JASSM)</b>
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	11.775	32.946	29.494	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
4515 Joint Air-to-Surface Standoff Missile (JASSM)	11.775	4.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1,053.780
5356 JASSM Extended Range (JASSM-ER)	0.000	28.946	20.548	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5357 JASSM Anti Surface Warfare (ASuW)	0.000	0.000	8.946	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

FY10 is the first year this PE is broken out in 3 projects given above. Last year all RDT&E was funded in project 4515.

**(U) A. Mission Description and Budget Item Justification**

The Joint Air-to-Surface Standoff Missile (JASSM) is an Air Force program designated ACAT 1D in Jun 2007. This program provides a long range, conventional air-to-surface, autonomous, precision-guided, standoff cruise missile compatible with fighter and bomber aircraft able to attack a variety of fixed or relocatable targets. Aircraft integration is complete on the B-52H, F-16 (Block 50), B-1, and B-2. Objective aircraft include the F-15E, F-16 (Block 40), F-35, and F/A-18E/F. The Air Force is buying the JASSM system based on a contractor-developed, government-approved System Performance Specification (SPS), this SPS is on contract. The contractor assumes total system performance responsibility (TSPR) for Lots 1-6 as defined in the SPS; for Lot 7 and beyond, the Air Force has approval authority of Class I configuration changes.

On 1 May, 2008, the Defense Acquisition Executive (DAE) completed its Nunn-McCurdy review of the JASSM program and certified a restructured program to consist of two separable increments, the JASSM Baseline increment and the JASSM-Extended Range (JASSM-ER) increment--both with improved reliability, separate milestone decision points and separate projects within a single program element. DAE also directed the Air Force to begin requirements definition on a JASSM Anti-Surface Warfare (ASuW) enhancement, separate from the JASSM Baseline and JASSM-ER increments. This year, the program element has been broken out into 3 projects given above.

This activity is reflected in Budget Activity 7, Operational Systems Development, because JASSM Baseline production (Low Rate Initial Production) started in FY02.

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207325F Joint Air-to-Surface Standoff Missile (JASSM)

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	12.074	13.035	0.000
(U) Current PBR/President's Budget	11.775	32.946	29.494
(U) Total Adjustments	-0.299	19.911	
(U) Congressional Program Reductions	0.000	0.000	
Congressional Rescissions	0.000	-0.089	
Congressional Increases	0.000	20.000	
Reprogrammings	0.000	0.000	
SBIR/STTR Transfer	-0.299	0.000	

(U) **Significant Program Changes:**

Funding: In FY09, Congress added \$20M to continue JASSM-ER development and testing. In FY 2010, formally added two new projects: JASSM-Extended Range (ER), and JASSM ASuW. In FY10, added funding for continuing JASSM-ER development and starting JASSM ASuW.



**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

<b>BUDGET ACTIVITY</b> 07 Operational System Development				<b>PE NUMBER AND TITLE</b> 0207325F Joint Air-to-Surface Standoff Missile (JASSM)				<b>PROJECT NUMBER AND TITLE</b> 4515 Joint Air-to-Surface Standoff Missile (JASSM)		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
4515 Joint Air-to-Surface Standoff Missile (JASSM)	11.775	4.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1,053.780
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

Funding shown in FY08 is for JASSM and JASSM-ER development activities. In FY09 and beyond, JASSM-ER is separated into its own project.

**(U) A. Mission Description and Budget Item Justification**

The Joint Air-to-Surface Standoff Missile (JASSM) is an Air Force program designated ACAT 1D in Jun 2007. This program provides a long range, conventional air-to-surface, autonomous, precision-guided, standoff cruise missile compatible with fighter and bomber aircraft able to attack a variety of fixed or relocatable targets. Aircraft integration is complete on the B-52H, F-16 (Block 50), B-1, and B-2. Objective aircraft include the F-15E, F-16 (Block 40), F-35, and F/A-18E/F. The government is buying the JASSM system based on a contractor-developed, government-approved System Performance Specification (SPS), this SPS is on contract. The contractor assumes total system performance responsibility (TSPR) for Lots 1-6 as defined in the SPS; for Lot 7 and beyond, the Government has approval authority of Class I configuration changes.

JASSM (baseline) program completed a Reliability Improvement Program in Spring 2008, which culminated with an April 2008 DAE decision to support the JASSM Nunn-McCurdy certification. The restructured program was certified by DAE to Congress on 1 May 2008.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Continue JASSM and JASSM-ER development, including component upgrades/studies/development, DT testing, and aircraft integration.	3.790	0.000	0.000
(U) Continue upgrades to the Baseline system, including but not limited to JASSM Data Link and Maritime Interdiction	1.100	0.000	0.000
(U) Continue JASSM Baseline reliability initiatives/component upgrades, ground/flight test support, and affordability initiatives.	6.000	3.000	0.000
(U) Continue program office/mission support.	0.885	1.000	0.000
(U) Total Cost	11.775	4.000	0.000

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) PE 0207325F JASSM Missile Procurement - Baseline	160.036	199.703	52.666							TBD

**(U) D. Acquisition Strategy**

All major contracts within this project have been awarded through full and open competition. The EMD phase option for JASSM baseline was Cost Plus Award Fee (CPAF).

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE  
**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>				PE NUMBER AND TITLE <b>0207325F Joint Air-to-Surface Standoff Missile (JASSM)</b>				PROJECT NUMBER AND TITLE <b>4515 Joint Air-to-Surface Standoff Missile (JASSM)</b>				
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> MDA - PDRR I	C/CPFF	McDonnell Douglas Aircraft, MO	120.571	0.000		0.000					120.571	120.571
PDRR I& II	C/CPFF	Lockheed Martin, FL	151.109	0.000		0.000					151.109	151.109
EMD & Follow on Development	C/CPAF	Lockheed Martin, FL	409.915	0.000		0.000					409.915	409.915
JASSM ER Risk Reduction Phase I	SS/FFP	Lockheed Martin, FL	9.700	0.000		0.000					9.700	9.700
JASSM ER Development Phase II	SS/CPAF	Lockheed Martin, FL	109.709	4.890	Aug-08	0.000					114.599	114.599
Baseline/ER reliability initiatives, component upgrades, ESAF	SS/CPFF	Lockheed Martin, FL	0.000	5.250	Aug-08	3.000	Jan-09				8.250	9.750
Data Link/MI	SS/CPFF	Lockheed Martin, FL	8.800	0.250	Aug-08	0.000					9.050	9.050
Subtotal Product Development			809.804	10.390		3.000		0.000		0.000	823.194	824.694
Remarks:												
(U) <u>Support</u> F-16 SPO	In-House	WPAFB, OH	26.605	0.000		0.000					26.605	26.605
B-52 SPO	In-House	Tinker AFB, OK	31.229	0.000		0.000					31.229	31.229
B-1 SPO	In-House	WPAFB, OH	6.031	0.000		0.000					6.031	6.031
Other Acft Integ	In-House	various	3.463	0.000		0.000					3.463	3.463
Sverdrup Inc.	C/CPAF	Eglin AFB, FL	15.952	0.000		0.000					15.952	15.952
Other Support (ASuW prep)	Misc	various	38.255	0.885	N/A	1.000	N/A				40.140	40.640
Subtotal Support			121.535	0.885		1.000		0.000		0.000	123.420	123.920
Remarks:												
(U) <u>Test &amp; Evaluation</u> 46TW	In-House	Eglin AFB, FL	97.858	0.500	N/A	0.000					98.358	98.358
Arnold Eng Dev Center	In-House	Arnold AFB, TN	6.808	0.000		0.000					6.808	6.808
Subtotal Test & Evaluation			104.666	0.500		0.000		0.000		0.000	105.166	105.166
Remarks:												
(U) Total Cost			1,036.005	11.775		4.000		0.000		0.000	1,051.780	1,053.780

R-1 Line Item No. 144

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Project 4515

Exhibit R-3 (PE 0207325F)

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

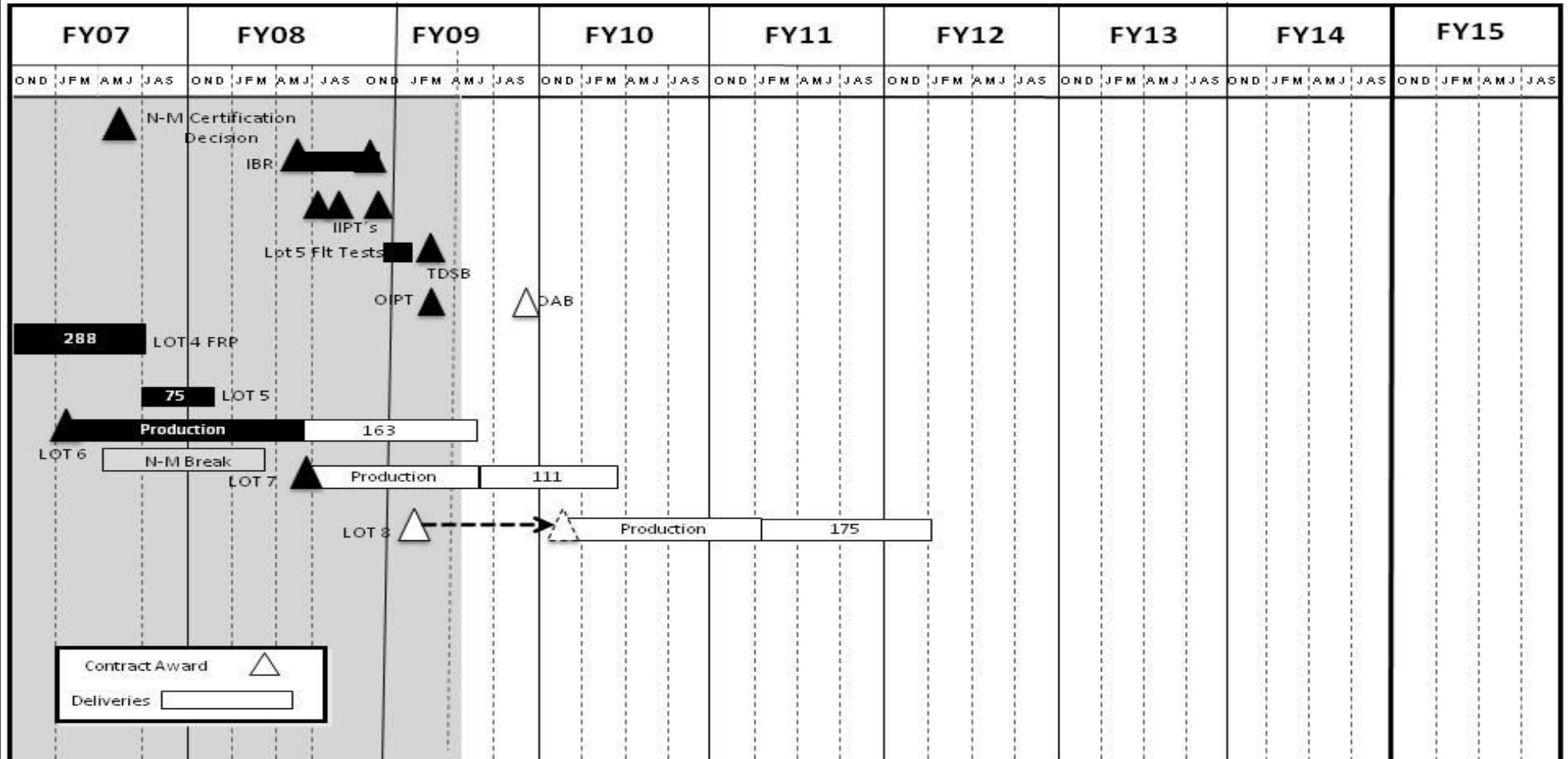
BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0207325F Joint Air-to-Surface Standoff Missile (JASSM)

PROJECT NUMBER AND TITLE  
4515 Joint Air-to-Surface Standoff Missile (JASSM)

Joint Air-to-Surface Standoff Missile (JASSM-Baseline)

As Of: 27 Apr 09



R-1 Line Item No. 144

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Exhibit R-4 (PE 0207325F)

<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>May 2009</b>
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BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0207325F Joint Air-to-Surface Standoff Missile (JASSM)</b>	PROJECT NUMBER AND TITLE <b>4515 Joint Air-to-Surface Standoff Missile (JASSM)</b>
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	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) <b><u>Schedule Profile</u></b>			
(U) JASSM Baseline/ER restart and reliability improvement	3-4Q	1-4Q	
(U) JASSM ground and flight testing		1-4Q	1-4Q

Exhibit R-2a, RDT&E Project Justification

DATE  
May 2009

BUDGET ACTIVITY <b>07 Operational System Development</b>				PE NUMBER AND TITLE <b>0207325F Joint Air-to-Surface Standoff Missile (JASSM)</b>				PROJECT NUMBER AND TITLE <b>5356 JASSM Extended Range (JASSM-ER)</b>		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5356 JASSM Extended Range (JASSM-ER)	0.000	28.946	20.548	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	4	8	0	0	0	0	0		

This is a new project for JASSM-ER. All FY08 funds for JASSM-ER are still in project 4515.

(U) **A. Mission Description and Budget Item Justification**

The Joint Air-to-Surface Standoff Missile with Extended Range (JASSM-ER) is an Air Force program designated ACAT 1D in June 2007. Previously (including FY08 and FY09), JASSM-ER was funded under the JASSM project (67515). This program provides a long range, conventional air-to-surface, autonomous, precision-guided, low observable, standoff cruise missile compatible with fighter and bomber aircraft. The threshold integration platform for JASSM-ER is the B-1B. Objective aircraft include the B-52H, F-16 (Block 40/50), B-2, F-15E, F-35, and F/A-18E/F. JASSM-ER provides the capability to attack a variety of high value fixed (to include buried) or relocatable targets with precision, through preplanned missions or target-of-opportunity, deeper into enemy territory than JASSM Baseline while minimizing the threat to launch aircraft. The Air Force is developing JASSM-ER based on a contractor-developed, government-approved System Performance Specification (SPS) dated January 19, 2004, which was developed under JASSM-ER development Phase I Risk Reduction in FY03. On 1 May, 2008, the DAE completed its Nunn-McCurdy review of the JASSM program and certified the program to Congress.

(U) **B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Continue JASSM-ER development, including component upgrades/studies/development	0.000	27.946	16.948
(U) Continue ER reliability initiatives/component upgrades, 46TW ground/flight test support and affordability initiatives.	0.000	1.000	2.500
(U) Continue program office/mission support.	0.000	0.000	1.100
(U) Total Cost	0.000	28.946	20.548

(U) **C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to Complete</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>		
(U) NONE										

(U) **D. Acquisition Strategy**

JASSM-ER is the extended range version of the baseline JASSM currently in production. JASSM-ER is being developed in two phases; Phase I risk reduction and Phase II development. The Phase I risk reduction contract was as Firm Fixed Price contract awarded June 2003. This phase completed March 2004. The Phase II development contract is a Cost Plus Award Fee contract awarded February 2004. JASSM-ER development restarted in June 2008 after the successful Nunn-McCurdy certification. Continuation of the Phase II development will be executed as a delivery order under an Indefinite Delivery/Indefinite Quantity contract. Continuation of development will be a Cost Plus Fixed Fee with Performance Incentives to produce and test integrated test missiles. Operational Test missiles will be purchased with

Exhibit R-2a, RDT&E Project Justification

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207325F Joint Air-to-Surface Standoff Missile (JASSM)

PROJECT NUMBER AND TITLE

5356 JASSM Extended Range (JASSM-ER)

the baseline JASSM Lot 8 Firm Fixed Price with Performance Incentive contract in November 2009.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>07 Operational System Development</b>				<b>0207325F Joint Air-to-Surface Standoff Missile (JASSM)</b>					<b>5356 JASSM Extended Range (JASSM-ER)</b>			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
JASSM ER Development & building DT missiles	SS/CPAF	Lockheed Martin, FL	0.000	0.000		27.946	Feb-09	16.948	Jan-10		44.894	TBD
Parts Upgrade and Software Update (due to obsolescence)	TBD	TBD	0.000	0.000		0.000		0.000			0.000	TBD
Subtotal Product Development			0.000	0.000		27.946		16.948		0.000	44.894	TBD
Remarks:												
(U) <u>Support</u>												
Other Support	Misc	various	0.000	0.000		0.000		1.100	N/A		1.100	TBD
Subtotal Support			0.000	0.000		0.000		1.100		0.000	1.100	TBD
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
46 TW	PO	Eglin AFB, FL	0.000	0.000		1.000	N/A	2.500	N/A		3.500	TBD
Subtotal Test & Evaluation			0.000	0.000		1.000		2.500		0.000	3.500	TBD
Remarks:												
(U) <u>Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	TBD
Remarks:												
(U) Total Cost			0.000	0.000		28.946		20.548		0.000	49.494	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

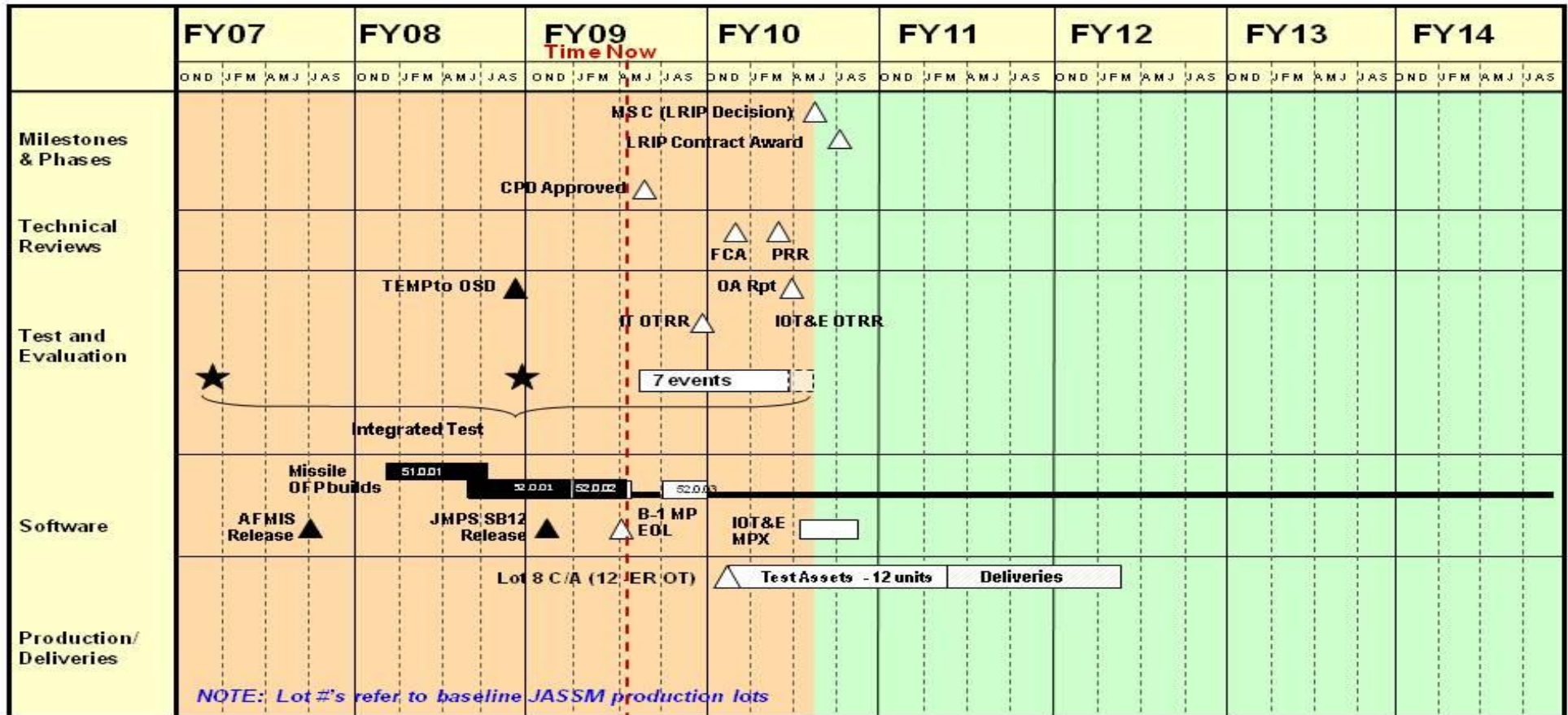
BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0207325F Joint Air-to-Surface  
Standoff Missile (JASSM)

PROJECT NUMBER AND TITLE  
5356 JASSM Extended Range  
(JASSM-ER)

# JASSM-ER Schedule

As Of: 23 Apr 09





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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>		DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0207325F Joint Air-to-Surface Standoff Missile (JASSM)</b>	<b>PROJECT NUMBER AND TITLE</b> <b>5356 JASSM Extended Range (JASSM-ER)</b>
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	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) <b><u>Schedule Profile</u></b>			
(U) IT: Integrated Testing (Combined DT/OT)		3-4Q	1-4Q
(U) JASSM-ER Development		1-4Q	1-4Q

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>					PE NUMBER AND TITLE <b>0207325F Joint Air-to-Surface Standoff Missile (JASSM)</b>			PROJECT NUMBER AND TITLE <b>5357 JASSM Anti Surface Warfare (ASuW)</b>		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5357 JASSM Anti Surface Warfare (ASuW)	0.000	0.000	8.946	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

This is a new project, starting in FY10.

**(U) A. Mission Description and Budget Item Justification**

The Joint Air-to-Surface Standoff Missile/Anti-Surface Warfare (JASSM/ASuW) program brings an additional JASSM capability to conduct operations against high-value surface combatant ships. Previously, part of the ASuW capability (weapon data link) was funded under the JASSM project (67515). This System Development and Demonstration (SDD) program integrates into JASSM a line-of-sight data link capability, as well as the development and integration of a new terminal area algorithm to acquire the desired targets. The threshold launch aircraft is the B-1 bomber. Controlling platforms such as USAF E-8 Joint Surveillance Target Attack Radar System (JSTARS) will provide initial target data to the launch platform, and provided updated target information to the in-flight JASSM. As an objective, integration of a Beyond-Line-of-Sight into JASSM-ER is a requirement. As part of the 1 May 2008 Nunn-McCurdy certification of a restructured JASSM program, DAE directed the Air Force to begin requirements definition on a JASSM Anti-Surface Warfare (ASuW) enhancement, separate from the JASSM Baseline and JASSM-ER increments.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Start JASSM ASuW - weapon system integration studies	0.000	0.000	1.946
(U) JASSM ASuW Development			7.000
(U) Total Cost	0.000	0.000	8.946

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) NONE										

**(U) D. Acquisition Strategy**

The JASSM ASuW program is currently pre-Milestone B, and the program office is supporting the requirements definition process. Milestone B is currently scheduled for 2QFY12, with award of a Cost Plus Fixed Fee with Performance Incentive Systems Development and Demonstration (SDD) contract in February 2011.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>07 Operational System Development</b>				<b>0207325F Joint Air-to-Surface Standoff Missile (JASSM)</b>					<b>5357 JASSM Anti Surface Warfare (ASuW)</b>			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
JASSM Anti-Surface Warfare Development/study	SS/CPFF	Lockheed Martin, FL	0.000	0.000		0.000		1.946	Jan-10		1.946	TBD
JASSM ASuW Development	SS/CPFF	Lockheed martin, FL						7.000			7.000	
Subtotal Product Development			0.000	0.000		0.000		8.946		0.000	8.946	TBD
Remarks:												
(U) <u>Support</u>												
Other Support	Misc	various	0.000	0.000		0.000		0.000			0.000	TBD
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	TBD
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
46TW	PO	Eglin AFB, FL	0.000	0.000		0.000		0.000			0.000	TBD
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	TBD
Remarks:												
(U) <u>Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	TBD
Remarks:												
(U) Total Cost			0.000	0.000		0.000		8.946		0.000	8.946	TBD

## Exhibit R-4, RDT&amp;E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207325F Joint Air-to-Surface  
Standoff Missile (JASSM)

PROJECT NUMBER AND TITLE

5357 JASSM Anti Surface Warfare  
(ASuW)

# ***JASSM ASuW Schedule***

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**JASSM Anti Surface Warfare (ASuW) project starts in FY10 with low level of funding (\$1.5M) for ASuW Capability and development study. FY11 and beyond program TBD**

<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>May 2009</b>
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BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0207325F Joint Air-to-Surface Standoff Missile (JASSM)</b>	PROJECT NUMBER AND TITLE <b>5357 JASSM Anti Surface Warfare (ASuW)</b>
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(U) <u>Schedule Profile</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) JASSM ASuW Development/Study			1-4Q

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PE NUMBER: 0207410F

PE TITLE: Air and Space Operations Center - Weapon System (AOC-WS)

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0207410F Air and Space Operations Center - Weapon System (AOC-WS)</b>
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	96.593	98.566	99.405	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
4372 Space C2 Operations	8.220	24.391	0.000	0.000	0.000	0.000	0.000	0.000	0.000	32.611
5117 Integration Development	69.331	60.971	82.340	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5218 Applications Development	7.366	4.244	9.641	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5220 Unit Level	6.345	6.759	7.424	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5242 Command and Control Air Replanning and Monitoring (C2ARM)	5.331	2.201	0.000	0.000	0.000	0.000	0.000	0.000	0.000	7.532

In FY10, Project 674372, Space C2 Operations efforts transferred to PE 0305614F, JSpOC Mission Systems (JMS).  
 In FY10, Project 675242, Command and Control Air Replanning and Monitoring (C2ARM) efforts transferred to Project 675218, Applications Development, to better align C2 capability development projects and programs.

**(U) A. Mission Description and Budget Item Justification**

The Air and Space Operations Center Weapon System (AOC WS) program element provides development of Command and Control (C2) capabilities across the entire spectrum of air and space operations from the strategic to the tactical level. Beginning in FY10, there are three projects within the AOC WS program element.

Space C2 provides integrated space information and command and control of space forces for the Joint Functional Component Command for Space (JFCC-Space), and Commander USSTRATCOM.

Integration Development supports the Air and Space Operations Center Weapon System (AOC WS), AN/USQ-163 Falconer, the senior element of the Theater Air Control System (TACS). AOC WS is the weapon system the Commander, Air Force Forces (COMAFFOR) provides the Coalition/Joint Force Air Component Commander (C/JFACC) for planning, executing and assessing theater-wide air and space operations.

Applications Development provides worldwide operational capabilities which include core air battle planning, management, execution and personnel recovery for Air Force C2 in support of DoD, Coalition Partners, and other government agencies.

Unit Level (UL) supports two primary mission areas: UL Operations software systems provide both the scheduling and mission preparation activities at the wing and squadron level and the capabilities to report and track the success of each mission and influence decisions on future Air Battle Planning to refine future missions. UL Intel capabilities ensure detailed threat, target and imagery information are made available to mission commanders and aircrews planning current flight operations.

This program is Budget Activity 7 - Operation System Development because it provides funding for the modernization of a currently existing and operating system.

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207410F Air and Space Operations Center - Weapon System (AOC-WS)

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	100.173	118.834	119.414
(U) Current PBR/President's Budget	96.593	98.566	99.405
(U) Total Adjustments	-3.580	-20.268	
(U) Congressional Program Reductions		-20.000	
Congressional Rescissions		-0.268	
Congressional Increases			
Reprogrammings	-0.850		
SBIR/STTR Transfer	-2.730		

(U) **Significant Program Changes:**

In FY09, previous President's Budget was reduced by \$20M Congressional reduction due to AOC 10.2 MS B slip in Project 675117, Integration Development.

In FY10, current President's Budget was reduced due to transfer of Project 674372, Space C2 Operations.



**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>					PE NUMBER AND TITLE <b>0207410F Air and Space Operations Center - Weapon System (AOC-WS)</b>			PROJECT NUMBER AND TITLE <b>4372 Space C2 Operations</b>		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
4372 Space C2 Operations	8.220	24.391	0.000	0.000	0.000	0.000	0.000	0.000	0.000	32.611
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

In FY10, Project 674372, Space C2 Operations efforts transferred to PE 0305614F, JSpOC Mission Systems (JMS).

**(U) A. Mission Description and Budget Item Justification**

Space Command and Control (C2) system provides integrated space information and C2 of space forces for the Joint Functional Component Command for Space (JFCC-SPACE). It will allow CDRJFCC-SPACE to plan, direct, coordinate, and control operations of assigned forces. Specifically, the system will provide CDRJFCC-SPACE with the following abilities:

- Monitor: Status, activities and environment for assigned / attached space forces
- Assess: How space forces support the battle space; provides impacts of changes to force status; impacts of enemy forces on space assets
- Plan: Space operations to support theater and national ops
- Execute: Issue Joint Space Tasking Order; track task performance; adapt tasking to changing situations

Space C2 program will provide a net-centric, service oriented architecture along with space C2 services to meet the needs shown above. Space C2 mission applications are provided in an incremental approach.

Activities also include studies and analysis to support both current program planning and execution and future program planning.

The program is Budget Activity 7, Operational System Development, because it consolidates and unify Air Force air and space C2 development and integration.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Space C2 Technology development and demonstration of key elements (e.g., Space User Defined Operational Picture (UDOP) and key core services). Integrates the UDOP as well as Space Situational Awareness and attack assessment services on the to-be services oriented net-centric system architecture for the development phase. Funds preliminary design Space C2 mission applications risk reduction . Demonstrates maturity of Critical Technical Elements (CTEs).	8.220	8.722	0.000
(U) Space C2 provides an integrated theater/space C2 operational environment and service oriented, net-centric architecture. The Space C2 net centric infrastructure includes COTS hardware (servers and workstations) and core services system level software (e.g. collaboration, system management, security, archive and retrieve space C2 data). Will establish interoperability across the C2 enterprise, specifically the Joint Space Operations Center (JSpOC), other AOCs, JFCCs and the Global Operations Center (GOC). Funding provides for operational pilots, evaluation of 3rd party-developed space services providing foundational core-services, and insertion of C2 capabilities for other space systems providing information to the JSpOC.	0.000	15.669	0.000
(U) Total Cost	8.220	24.391	0.000

Exhibit R-2a, RDT&E Project Justification

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207410F Air and Space Operations  
Center - Weapon System (AOC-WS)

PROJECT NUMBER AND TITLE

4372 Space C2 Operations

(U) C. Other Program Funding Summary (\$ in Millions)

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	

(U) None

(U) D. Acquisition Strategy

Uses risk reduction technology demonstrations and operational pilots. Technology development performed by Air Force Research Laboratory.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>07 Operational System Development</b>				<b>0207410F Air and Space Operations Center - Weapon System (AOC-WS)</b>					<b>4372 Space C2 Operations</b>			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2008 Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date	Cost to Complete	Total Cost	Target Value of Contract
(U) <u>Product Development</u>												
Competitive Initial Mission Applications	CP/FF	TBD	0.000	0.000		3.932	Mar-09	0.000	Oct-09		3.932	3.932
AOC-WS Infrastructure	CP/IF	Lockheed Martin, Colorado Springs, Co	0.000	0.000		12.014	Mar-09	0.000	Nov-09	0.000	12.014	12.014
Space C2 Technology Risk Reduction	Mult	Air Force Research Laboratory, Albuquerque, NM	0.000	4.131	Feb-08	1.135	Dec-08	0.000		0.000	5.266	5.266
Subtotal Product Development			0.000	4.131		17.081		0.000		0.000	21.212	21.212
Remarks:												
(U) <u>Support</u>												
Systems Engineering	CP/FF	MITRE, Colorado Springs, CO		2.207	Nov-07	3.932	Nov-08	0.000	Nov-09	0.000	6.139	6.139
A&AS	CP/FF	PASS/ETAS, Colorado Springs, CO		1.882	Nov-07	3.378	Nov-08	0.000	Nov-09	0.000	5.260	5.260
Subtotal Support			0.000	4.089		7.310		0.000		0.000	11.399	11.399
Remarks:												
(U) Total Cost			0.000	8.220		24.391		0.000		0.000	32.611	32.611

R-1 Line Item No. 145

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Exhibit R-3 (PE 0207410F)

Project 4372

Exhibit R-4, RDT&E Schedule Profile

DATE  
May 2009

BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0207410F Air and Space Operations  
Center - Weapon System (AOC-WS)

PROJECT NUMBER AND TITLE  
4372 Space C2 Operations

Exhibit R-4, RDT&E Schedule Profile

O-7 Operational System Development

PE NUMBER AND TITLE  
0207410F Air and Space Operations  
Center - Weapon System (AOC-WS)

PROJECT NUMBER AND TITLE  
4372 Space C2 Operations

Activity	FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY15
CTE & JSIP Demo	Tech Risk Reduct							
Competitive Initial Mission Applications Design		MDD SRR SS Ctr1 Ctr2						
JSpOC Infrastructure								
Increment 1		SRR Integ.						

CDR: Critical Design Review    CTE: Critical Technical Element    CTR: Contractor    DT: Development Test    IOC/FOC: Initial/Full Operational Capability  
 IOT&E: Init Ops Test & Evaluation    JSIP: Joint Functional Component Command for Space Integrated Prototype    JSpOC: Joint Space Operations Center  
 MDD: Material Development Decision    PDR: Preliminary Design Review    SRR: System Readiness Review    SS: Source Selection  
  Risk Reduction/Source Selection      Design / Development / Integration      Develop/Operational Test

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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0207410F Air and Space Operations Center - Weapon System (AOC-WS)</b>	<b>PROJECT NUMBER AND TITLE</b> <b>4372 Space C2 Operations</b>
--	--	--

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) <b><u>Schedule Profile</u></b>			
(U) Space C2 Technology Risk Reduction Demonstrations, Pilots	2-4Q	1-2Q	
(U) Materiel Development Decision (MDD)		2Q	
(U) Increment 1 Competitive Initial Mission Applications Design		2-4Q	
(U) Increment 1 Infrastructure		2-4Q	

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>					PE NUMBER AND TITLE <b>0207410F Air and Space Operations Center - Weapon System (AOC-WS)</b>			PROJECT NUMBER AND TITLE <b>5117 Integration Development</b>		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5117 Integration Development	69.331	60.971	82.340	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

The Air and Space Operations Center Weapon System (AOC WS), AN/USQ-163 Falconer, the senior element of the Theater Air Control System (TACS), is the weapon system the Commander, Air Force Forces (COMAFFOR) provides the Combined/Joint Force Air Component Commander (C/JFACC) for planning, executing and assessing theater-wide air and space operations. The C/JFACC provides air, space and cyber support to the Combined/Joint Forces Commander (C/JFC) by coordinating, deconflicting and assessing the progress of various weapon systems to advance the C/JFC's campaign. The AOC WS develops operations strategy and planning documents. The weapon system also disseminates tasking orders, executes day-to-day peacetime and combat air, space and cyber operations, and provides rapid reaction to immediate situations by exercising positive control of friendly forces.

The AOC WS Integration Development program integrates system hardware and software to make the AOC WS a viable weapons system. This integration is in support of Falconer AOCs, Tailored Falconer AOCs, Functional AOCs, and Support units that are configured according to mission need. The program will integrate and support the development of Command and Control (C2) and Intelligence, Surveillance and Reconnaissance (ISR) capabilities through third party developers to the AOC WS baseline. To keep the AOC Weapon System current and interoperable with the COCOMs and fifth generation weapons systems/weapons, the AOC WS program plans to evolve the AOC through integrating progressively improving capabilities. The AOC WS uses the Weapon System Integrator (WSI) contractor to ensure system of systems perspective and systems engineering rigor, to evolve the AOC WS to a Net-Centric Environment (NCE), to build the "to be" infrastructure, and to conduct other weapon system standardization and modernization activities as defined in AOC WS requirements documents. This infrastructure will be compliant with DoD service oriented architecture (SOA) standards. The AOC WS Integration Development program provides a structure for systems integration, technical transition, and process refinement for rapidly evolving C2 programs, processes and concepts.

Activities also include studies and analysis to support both current program planning and execution and future program planning.

The program is in Budget Activity 7 - Operation System Development because it provides funding for the modernization of a currently existing and operating system.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) 10.1 Continue AOC integration, development and test of items to include, but not limited to, visualization, Coalition and Joint interoperability, airspace management and deconfliction, strategy and assessment, information assurance/security and keeping systems current and relevant to COCOM requirements.	46.223	38.827	15.383
(U) 10.2 AOC SOA Infrastructure and Capability Integration. Development and test of a robust, open, net-centric infrastructure implemented by a services-oriented architecture. Includes initial integration of baseline capabilities and development of items to include, but not limited to, dynamic planning and execution, data management, information assurance/security, multi-level security, predictive battlespace awareness and airspace management in support of the migration towards globally-linked Air and Space Operations Centers.	8.061	9.919	53.149

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0207410F Air and Space Operations Center - Weapon System (AOC-WS)</b>	<b>PROJECT NUMBER AND TITLE</b> <b>5117 Integration Development</b>
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<b>(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Training (To include, but not limited to: Type 1, Part Task Trainer, Distributed Mission Operations, Logistics Management Support and Conversion of Courseware to Computer Based Training)	1.000	1.315	2.176
(U) Systems Engineering	8.733	3.548	7.200
(U) Program Management Support	5.314	7.362	4.432
(U) Total Cost	69.331	60.971	82.340

<b>(U) <u>C. Other Program Funding Summary (\$ in Millions)</u></b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Other Procurement, AF PEC: 0207410F; BPAC: 83453A	43.363	34.947	54.093						Continuing	TBD
(U) O&M, PEC: 0207410F	145.897	102.675	107.115							

**(U) D. Acquisition Strategy**  
 The Air and Space Operations Center Weapon System Program Executive Officer (PEO) selected a Weapon System Integrator (WSI) through full and open competition, to ensure system of systems perspective and systems engineering rigor to evolve AOC WS to a Net-Centric environment, compliant with DoD Services Oriented Architecture (SOA) standards. The acquisition strategy builds on existing capabilities using evolutionary acquisition to standardize, modernize and sustain the AOC WS.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0207410F Air and Space Operations Center - Weapon System (AOC-WS)</b>	<b>PROJECT NUMBER AND TITLE</b> <b>5117 Integration Development</b>
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(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
10.1 Integration & Version Upgrades	CPAF	LM WSI, Colorado Springs, CO		46.223	Jan-08	38.827	Nov-08	15.383	Nov-09	Continuing	TBD	TBD
10.2 Integration & Modernization	CPAF; CPIF; FPIF	LM WSI, Colorado Springs, CO		8.061	Jan-08	9.919	Feb-09	53.149	Nov-09	Continuing	TBD	TBD
Training	various	AFMC, ESC, Hanscom AFB, MA, Eglin AFB, FL, Various		1.000	Jan-08	1.315	Jan-09	2.176	Dec-09	Continuing	TBD	TBD
Subtotal Product Development			0.000	55.284		50.061		70.708		Continuing	TBD	TBD
Remarks:												
(U) <u>Support</u>												
Systems Engineering	CPFF; Labor & Cost	MITRE, Bedford, MA; ETASS, ESC, Hanscom AFB, MA		8.733	Oct-07	3.548	Oct-08	7.200	Oct-09	Continuing	TBD	TBD
Program Office Support	Various	AFMC/ESC, Hanscom AFB, MA		5.314	Oct-07	7.362	Oct-08	4.432	Oct-09	Continuing	TBD	TBD
Subtotal Support			0.000	14.047		10.910		11.632		Continuing	TBD	TBD
Remarks:												
(U) Total Cost			0.000	69.331		60.971		82.340		Continuing	TBD	TBD



Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0207410F Air and Space Operations  
Center - Weapon System (AOC-WS)

PROJECT NUMBER AND TITLE  
5117 Integration Development

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# AOC WS Integrated Master Schedule



U.S. AIR FORCE

FY08

FY09

FY10

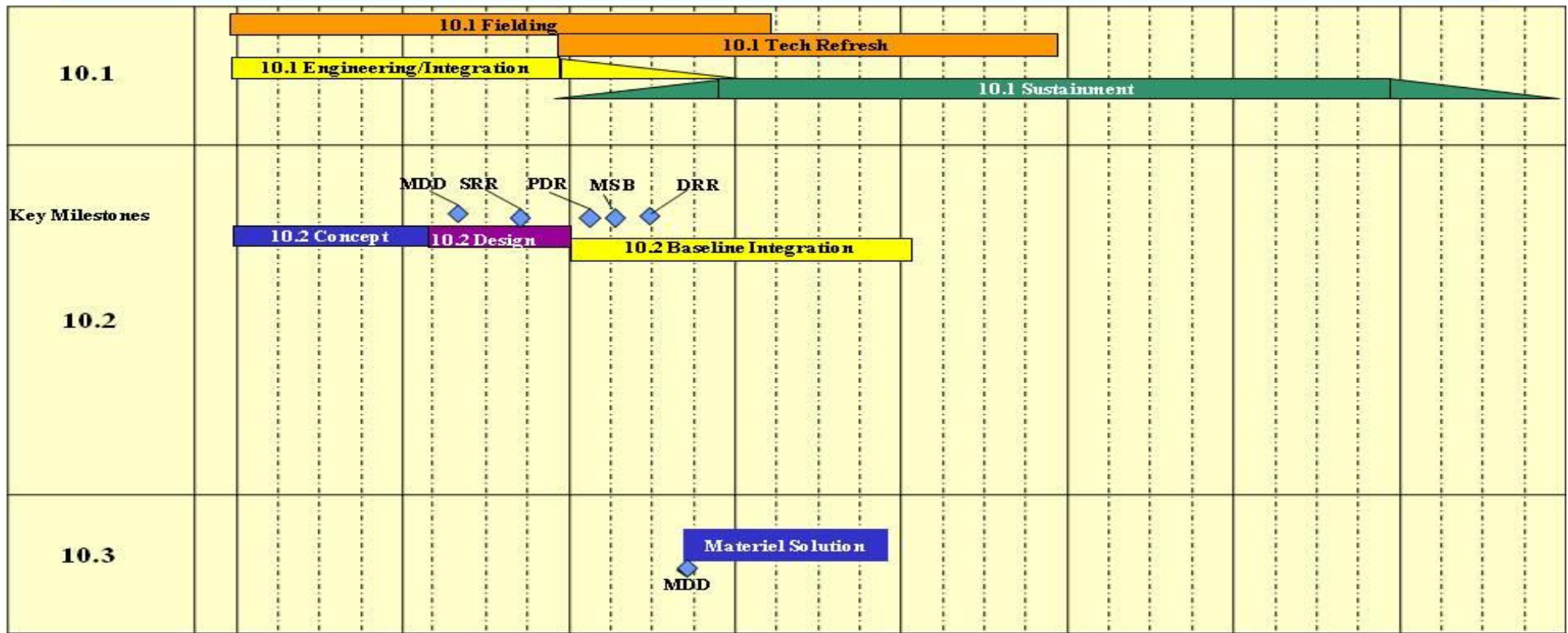
FY11

FY12

FY13

FY14

FY15



■ Concept Activities  
 ■ Design/Development  
 ■ Integration/Test  
 ■ Fielding  
 ■ Sustainment  
 ◆ Key events

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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0207410F Air and Space Operations Center - Weapon System (AOC-WS)</b>	<b>PROJECT NUMBER AND TITLE</b> <b>5117 Integration Development</b>
--	--	--

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) <b><u>Schedule Profile</u></b>			
(U) Increment 10.1 Fielding	1-4Q	1-4Q	1-4Q
(U) AOC 10.2 Concept Development/Design	1-4Q	1-4Q	
(U) AOC 10.2 Baseline/Integration			1-4Q
(U) Increment 10.2 MDD		2Q	

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0207410F Air and Space Operations Center - Weapon System (AOC-WS)</b>	<b>PROJECT NUMBER AND TITLE</b> <b>5218 Applications Development</b>
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5218 Applications Development	7.366	4.244	9.641	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

In FY10, funding for CSAR C2 effort was transferred from Project 675117, Integration Development, to Project 675218, Applications Development, in order to better align C2 capability development projects and programs.

In FY10, Project 675242, Command and Control Air Replanning and Monitoring (C2ARM) efforts transferred to Project 675218, Applications Development, to better align C2 capability development projects and programs.

**(U) A. Mission Description and Budget Item Justification**

This budget activity funds operational development necessary to acquire, modify, and sustain segments of Air Force's Command and Control (C2) capabilities and services. Applications Development provides worldwide operational capabilities for AF C2 in support of DoD, Coalition Partners, and other government agencies. These efforts focus on, but are not limited to support of the Combined/Joint Force Air Component Commander (C/JFACC), as presented to the Air and Space Operations Center (AOC) and to other C2 systems. Applications Development activities include but are not limited to the following: 1) Theater Battle Management Core System (TBMCS) Force Level (FL) program which delivers joint air battle planning, management and execution capabilities; 2) Command and Control Air Operations Suite (C2AOS) develops, matures, fields and maintains next-generation net-centric C2 services and capabilities for air battle planning, execution and management functions; 3) Combat Search and Rescue Command and Control (CSAR C2) which delivers planning, managing, and disseminating search and rescue information and services; and 4) Command and Control Information Services (C2IS) which creates web-enabled information services to expose air operations data in TBMCS applications and systems using standardized schemas, such as those developed by the Air Operations Community of Interest (AO COI).

Core activities include but are not limited to: 1) maintaining operational viability of the current Joint System of Record (TBMCS 1.1.3); 2) developing capabilities to support planning and replanning of the Air Battle Plan; generation and dissemination of the Air Tasking Order; air and space defensive planning and execution; targeting; weaponeering; personnel recovery tasks; other applications and services supporting C2 utilized in the joint environment and 3) providing support to and participating in the AO COI to improve air operations information interoperability among all joint and coalition systems within the AO domain. The AO COI defines and develops air operations vocabulary and data models upon which net centric information services are built; 4) developing and assessing C2 technologies that will improve joint and coalition warfighter interoperability, including participation in annual NATO Coalition Warrior Interoperability Demonstration (CWID) activities, and 5) transitioning existing C2 capabilities to a net-centric environment. Applications Development efforts include evaluation and maturation of future air and space command and control concepts identified through research, risk reduction, prototyping, current operations, exercises and demonstrations.

Activities also include studies and analysis to support both current program planning and execution and future program planning.

The program is in Budget Activity 7 - Operation Systems Development because it provides funding for the modernization of currently existing and operating systems.

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0207410F Air and Space Operations Center - Weapon System (AOC-WS)</b>	<b>PROJECT NUMBER AND TITLE</b> <b>5218 Applications Development</b>
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<b>(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) TBMCS Force Level Support (e.g. Training Development, Test & Eval, Prgm Support)	7.066	0.649	0.000
(U) NATO ICR&D (International Cooperation Research & Development) projects	0.300	0.300	0.300
(U) C2IS	0.000		2.941
(U) CSAR C2	0.000	0.000	2.025
(U) C2AOS	0.000	3.295	4.375
(U) Total Cost	7.366	4.244	9.641

<b>(U) <u>C. Other Program Funding Summary (\$ in Millions)</u></b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Other Procurement, AF, PE 0207410F, WSC 834520, TBMCS FL	11.863	11.953	16.135						Continuing	TBD
(U) Other Procurement, AF PE 0207410F, WSC 834520, CSAR C2	0.000	0.000	1.120						Continuing	TBD
(U) O&M, PE 0207410F, BG1000 (TBMCS FL)	16.451	16.626	16.908						Continuing	TBD
(U) O&M, PE 0207410F, BLZ000 (CSAR C2)	0.000	0.000	5.563						Continuing	TBD

**(U) D. Acquisition Strategy**  
Projects will be awarded following full and open competition and will use an evolutionary acquisition strategy based on incremental development.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0207410F Air and Space Operations Center - Weapon System (AOC-WS)</b>	<b>PROJECT NUMBER AND TITLE</b> <b>5218 Applications Development</b>
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<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
<u>(U) Product Development</u>												
Subtotal Product Development			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
<u>(U) Support</u>												
TBMCS Force Level Support	FFP/FPIF/C PAF	Lockheed Martin, Colorado Springs, CO		1.945	Dec-07	0.000		0.000		Continuing	TBD	TBD
CSAR-C2	Labor Hour & Cost	TBD				1.727		1.860		Continuing	TBD	TBD
C2IS	TBD	TBD						1.422	Feb-10	Continuing	TBD	TBD
C2AOS	TBD	TBD						3.696		Continuing	TBD	TBD
Subtotal Support			0.000	1.945		1.727		6.978		Continuing	TBD	TBD
Remarks:												
<u>(U) Test &amp; Evaluation</u>												
Test and Evaluation	MIPR	46th Test Squadron, Eglin AFB, FL		0.996	Dec-07	0.000		0.000		Continuing	TBD	TBD
Subtotal Test & Evaluation			0.000	0.996		0.000		0.000		Continuing	TBD	TBD
Remarks:												
<u>(U) Management</u>												
Program Support (MITRE, A&AS, Travel)	Various	Hanscom AFB, MA		2.540	Oct-07	2.152	Dec-08	2.363	Oct-09	Continuing	TBD	TBD
Subtotal Management			0.000	2.540		2.152		2.363		Continuing	TBD	TBD
Remarks:												
<u>(U) Training Development</u>												
Training development	CPAF	Lockheed Martin, Colorado Springs, CO		1.585	Dec-07	0.065	Jan-09	0.000		0.000	1.650	TBD
Subtotal Training Development			0.000	1.585		0.065		0.000		0.000	1.650	TBD
Remarks:												
<u>(U) NATO ICR&amp;D Projects</u>												
NATO ICR&D Projects	Various	Hanscom AFB, MA		0.300	Oct-08	0.300	Jan-09	0.300	Oct-09	Continuing	TBD	TBD
Subtotal NATO ICR&D Projects			0.000	0.300		0.300		0.300		Continuing	TBD	TBD
Remarks:												
<u>(U) Total Cost</u>			0.000	7.366		4.244		9.641		Continuing	TBD	TBD

R-1 Line Item No. 145

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Exhibit R-3 (PE 0207410F)

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0207410F Air and Space Operations  
Center - Weapon System (AOC-WS)

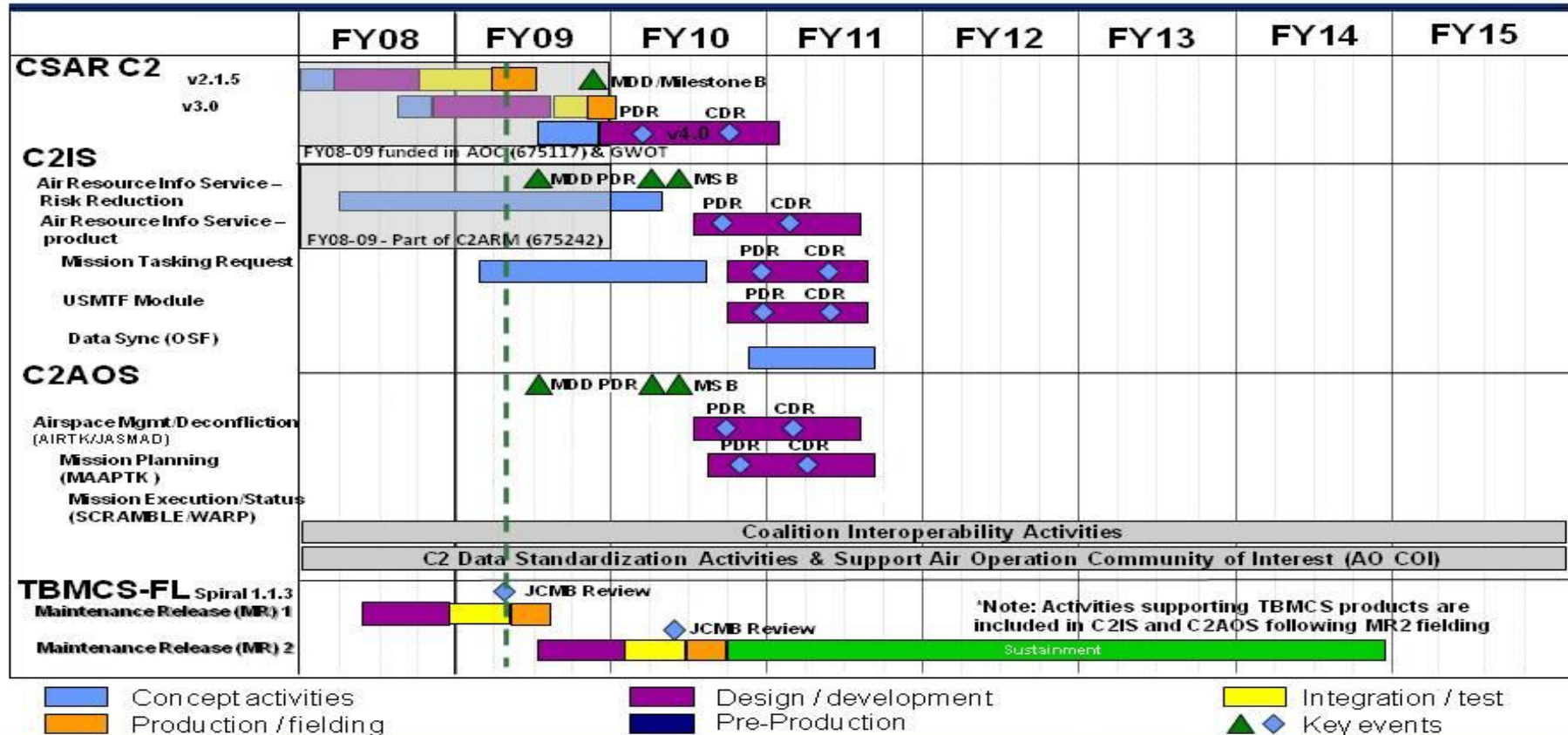
PROJECT NUMBER AND TITLE  
5218 Applications Development

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U.S. AIR FORCE

# C2 Applications Development Schedule



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Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0207410F Air and Space Operations Center - Weapon System (AOC-WS)</b>	PROJECT NUMBER AND TITLE <b>5218 Applications Development</b>
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(U) <u>Schedule Profile</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) CSAR C2 v4.0			1-4Q
(U) C2IS (Air Resource Info Service product)		3-4Q	1-4Q
(U) C2AOS (Air Planning Service)		1-4Q	1-4Q
(U) C2AOS (Mission Task Request Service-Risk Reduction)		2-4Q	1-4Q
(U) C2AOS (Mission Task Request Service-Product)			1-4Q
(U) TBMCS-FL (MR 1)	2-4Q	1-3Q	
(U) TBMCS-FL (MR 2)		3-4Q	1-3Q

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>						PE NUMBER AND TITLE <b>0207410F Air and Space Operations Center - Weapon System (AOC-WS)</b>		PROJECT NUMBER AND TITLE <b>5220 Unit Level</b>		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5220 Unit Level	6.345	6.759	7.424	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

The Unit Level (UL) program, as the follow on to Theater Battle Management Core Systems-Unit Level, develops, integrates, fields, and maintains an evolving sequence of increasing software capabilities (Unit Command & Control - UC2) that support the execution of the air battle plan and the air tasking order message received from the force level systems. Unit Level Operations software systems provide both the scheduling and mission preparation activities at the wing and squadron level and the capabilities to report and track the success of each mission and influence decisions on future Air Battle Planning to refine future missions. Unit Level Intelligence capabilities ensure detailed threat, target and imagery information are made available to mission commanders and aircrews planning current flight operations. UL is fielded to the Wing Operations Center (WOC), the Maintenance Operations Center (MOC), the Squadron Operations Center (SOC), and many other work-centers.

Activities also include studies and analysis to support both current program planning and execution and future program planning.

The program is in Budget Activity 7 - Operation System Development because it provides funding for the modernization of a currently existing and operating system.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Continue Unit Level Operations and Intelligence increment software development/integration (formerly known as TBMCS-Unit Level)	3.819	4.394	4.918
(U) Test Support	0.578	0.509	0.534
(U) System Engineering	0.678	0.643	0.663
(U) Program Support (including contract engineering support, tech support, etc)	1.270	1.213	1.309
(U) Total Cost	6.345	6.759	7.424

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2008</u> <u>Actual</u>	<u>FY 2009</u> <u>Estimate</u>	<u>FY 2010</u> <u>Estimate</u>	<u>FY 2011</u> <u>Estimate</u>	<u>FY 2012</u> <u>Estimate</u>	<u>FY 2013</u> <u>Estimate</u>	<u>FY 2014</u> <u>Estimate</u>	<u>FY 2015</u> <u>Estimate</u>	<u>Cost to</u> <u>Complete</u>	<u>Total Cost</u>
(U) Other Procurement, AF, PE 0207410F, WSC 834520, PROG BG2000	10.170	10.495	12.863						Continuing	TBD
(U) O&M, PE 0207410F, PROG BG2000	3.047	2.169	1.969						Continuing	TBD



## Exhibit R-2a, RDT&amp;E Project Justification

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207410F Air and Space Operations  
Center - Weapon System (AOC-WS)

PROJECT NUMBER AND TITLE

5220 Unit Level

(U) D. Acquisition Strategy

Projects will be awarded following full and open competition and will use an evolutionary acquisition strategy based on increment development.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>07 Operational System Development</b>				<b>0207410F Air and Space Operations Center - Weapon System (AOC-WS)</b>					<b>5220 Unit Level</b>			
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> Increment Development	CPIF	Lockheed Martin, Hampton, VA & Colorado Springs, CO		3.867	Feb-08	4.696	Feb-09	4.918	Feb-10	Continuing	TBD	TBD
Subtotal Product Development			0.000	3.867		4.696		4.918		Continuing	TBD	TBD
Remarks:												
(U) <u>Support</u>											0.000	0.000
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u> Test Support	MIPR	46TS, Eglin AFB, FL		0.774	Oct-07	0.663	Oct-08	0.534	Oct-09	Continuing	TBD	TBD
Subtotal Test & Evaluation			0.000	0.774		0.663		0.534		Continuing	TBD	TBD
Remarks:												
(U) <u>System Engineering</u> Systems Engineering	CPFF	MITRE, Bedford, MA		0.678	Oct-07	0.643	Oct-08	0.663	Oct-09	Continuing	TBD	TBD
Subtotal System Engineering			0.000	0.678		0.643		0.663		Continuing	TBD	TBD
Remarks:												
(U) <u>Program Support</u>	various	Hanscom AFB, MA		1.026	Oct-07	0.757	Oct-08	1.309	Oct-09	Continuing	TBD	TBD
Subtotal Program Support			0.000	1.026		0.757		1.309		Continuing	TBD	TBD
Remarks:												
(U)											0.000	0.000
Subtotal			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			0.000	6.345		6.759		7.424		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

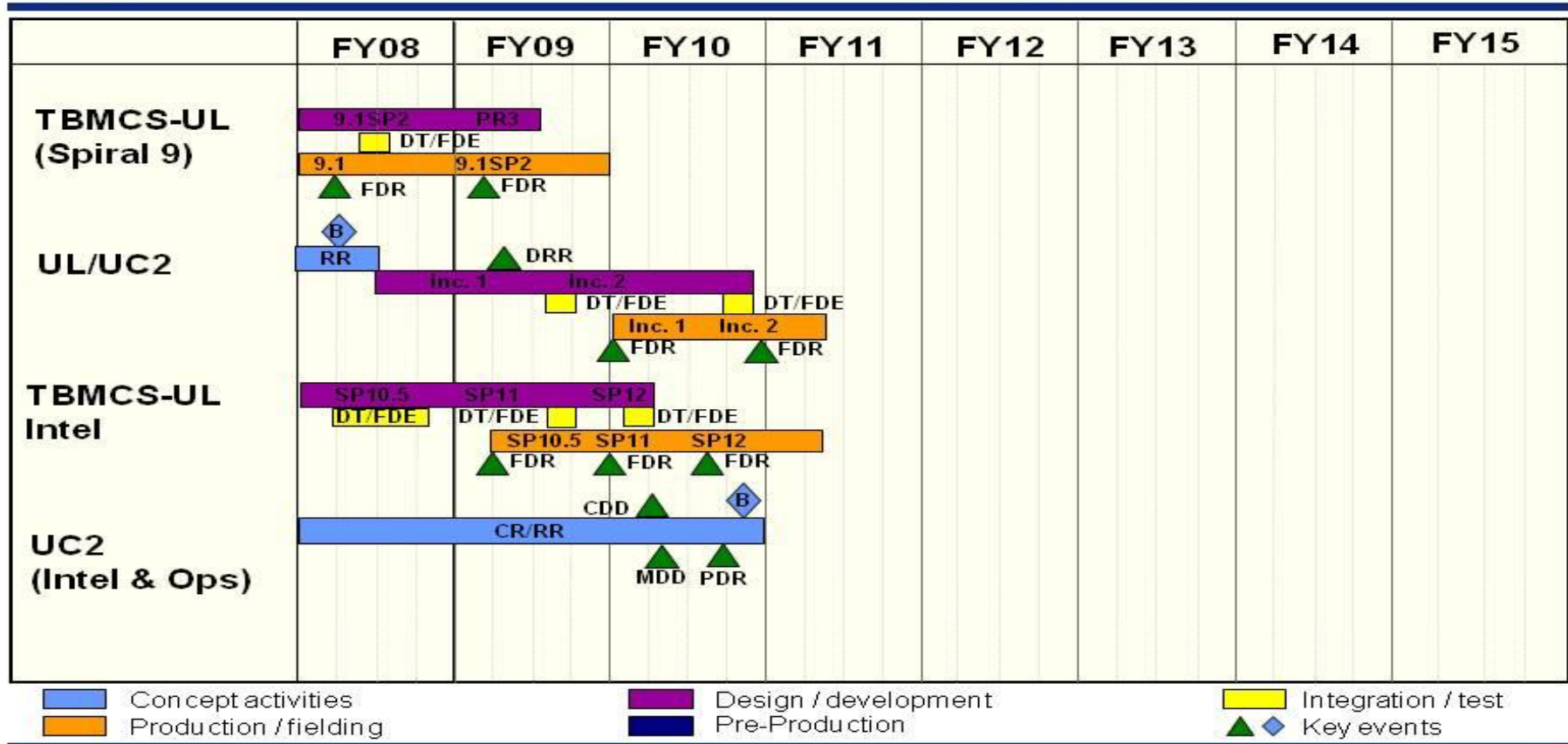
BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0207410F Air and Space Operations  
Center - Weapon System (AOC-WS)

PROJECT NUMBER AND TITLE  
5220 Unit Level



# UL/UC2 Program Schedule



PB10 R-Docs

Depicted by installation/production flow

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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>May 2009</b>
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BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0207410F Air and Space Operations Center - Weapon System (AOC-WS)</b>	PROJECT NUMBER AND TITLE <b>5220 Unit Level</b>
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	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) <b><u>Schedule Profile</u></b>			
(U) Continue TBMCS-UL Ops Spiral 9	1-4Q	1-4Q	
(U) Continue TBMCS-UL Intel Spirals	1-4Q	1-4Q	1-2Q
(U) UC2 (Intel & Ops) MS B			4Q

Exhibit R-2a, RDT&E Project Justification

DATE  
May 2009

BUDGET ACTIVITY <b>07 Operational System Development</b>					PE NUMBER AND TITLE <b>0207410F Air and Space Operations Center - Weapon System (AOC-WS)</b>			PROJECT NUMBER AND TITLE <b>5242 Command and Control Air Replanning and Monitoring (C2ARM)</b>		
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5242 Command and Control Air Replanning and Monitoring (C2ARM)	5.331	2.201	0.000	0.000	0.000	0.000	0.000	0.000	0.000	7.532
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

In FY10, Project 675242, Command and Control Air Replanning and Monitoring (C2ARM) efforts transferred to Project 675218, Applications Development, to better align C2 capability development projects and programs.

(U) **A. Mission Description and Budget Item Justification**

C2ARM (referred to as C2IS in FY10 and beyond) is part of the transition of Theater Battle Management Core Systems (TBMCS) Force Level capabilities to a net-centric environment. Specifically, C2ARM/C2IS develops web-enabled information services to expose air operations data in legacy TBMCS systems using standardized schemas, such as those developed by the Air Operations Community of Interest (AO COI). The data services created by C2ARM/C2IS provide users with a single source for authoritative air operations data, including air resources, airspace deconfliction, missions and taskings. These capabilities will be available to C2 users including the Air and Space Operations Centers (AOC) as well as any future Net-Enabled Command Capability (NECC) environment. C2ARM/C2IS information services support air battle planning execution for service oriented architecture (SOA) applications such as those developed as NECC Capability Modules (CM).

Activities also include studies and analysis to support both current program planning and execution and future program planning.

(U) **B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) C2ARM Development/Test	4.160	1.636	0.000
(U) System Engineering	0.538	0.215	0.000
(U) Program Support	0.633	0.350	0.000
(U) Total Cost	5.331	2.201	0.000

(U) **C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) None										

(U) **D. Acquisition Strategy**

Multiple delivery orders on one or more existing ID/IQ contracts, approximately 1 data services task delivery per year, CPIF or Time and Materials.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>07 Operational System Development</b>				<b>0207410F Air and Space Operations Center - Weapon System (AOC-WS)</b>					<b>5242 Command and Control Air Replanning and Monitoring (C2ARM)</b>			
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
Product Development	TBD	TBD		4.160		1.636	Feb-09			Continuing	TBD	TBD
Subtotal Product Development			0.000	4.160		1.636		0.000		Continuing	TBD	TBD
Remarks:												
(U) <u>Support</u>												
Program Office Support	Various	Hanscom AFB, MA		0.633	Feb-08	0.350	Oct-08			Continuing	TBD	TBD
Subtotal Support			0.000	0.633		0.350		0.000		Continuing	TBD	TBD
Remarks:												
(U) <u>Management</u>												
Management										Continuing	TBD	TBD
Subtotal Management			0.000	0.000		0.000		0.000		Continuing	TBD	TBD
Remarks:												
(U) <u>Systems Engineering</u>												
Systems Engineering	CPFF	Hanscom AFB, MA		0.538	Feb-08	0.215	Oct-08			Continuing	TBD	TBD
Subtotal Systems Engineering			0.000	0.538		0.215		0.000		Continuing	TBD	TBD
Remarks:												
(U) Total Cost			0.000	5.331		2.201		0.000		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY  
07 Operational System Development

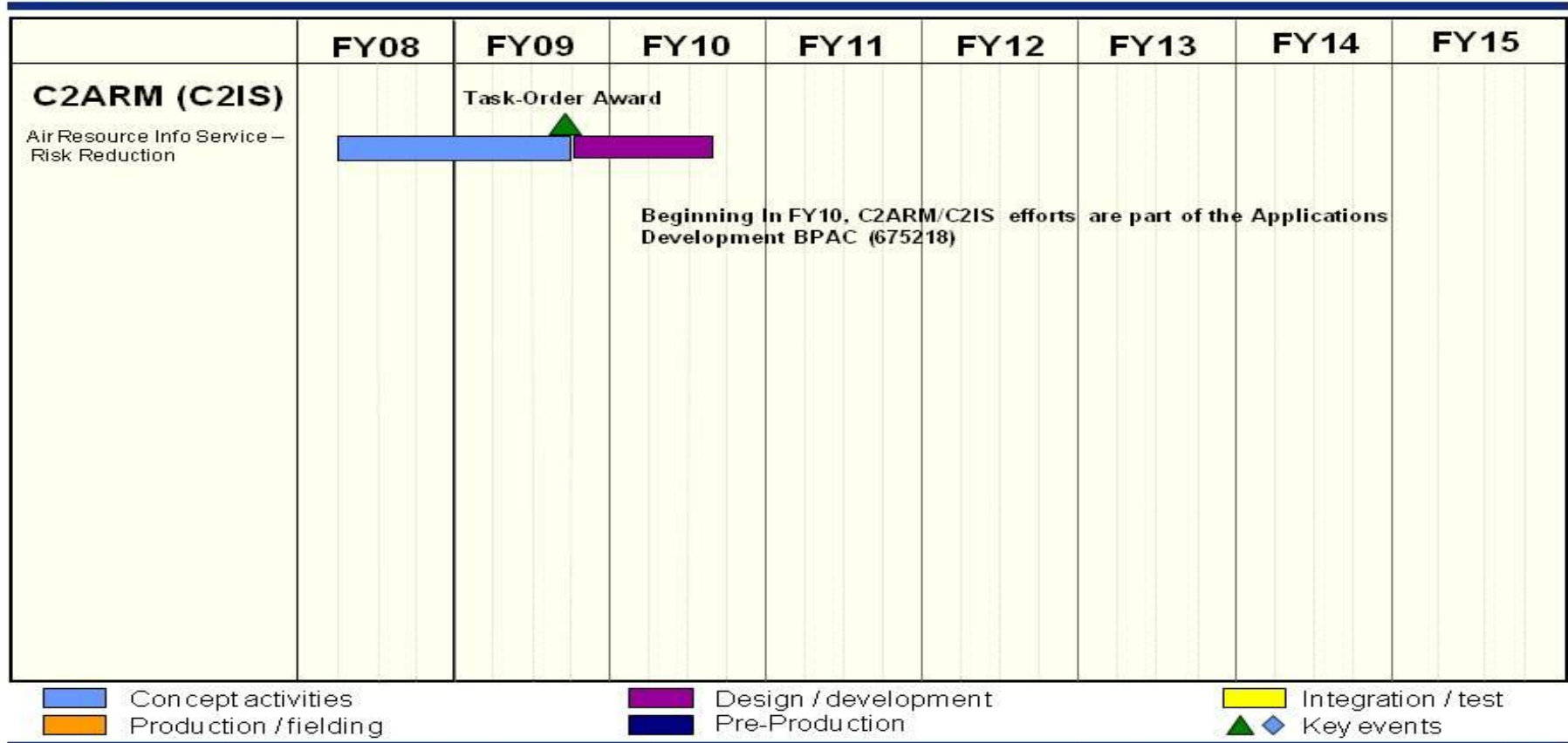
PE NUMBER AND TITLE  
0207410F Air and Space Operations  
Center - Weapon System (AOC-WS)

PROJECT NUMBER AND TITLE  
5242 Command and Control Air  
Replanning and Monitoring (C2ARM)

As of: 22 Apr 09



# C2ARM Program Schedule



PB10 R-Docs

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Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207410F Air and Space Operations  
Center - Weapon System (AOC-WS)

PROJECT NUMBER AND TITLE

5242 Command and Control Air  
Replanning and Monitoring (C2ARM)

(U) Schedule Profile

FY 2008

FY 2009

FY 2010

(U) C2ARM (C2IS) Air Resource Info Service-Risk Reduction Development Contract Award

3Q



**UNCLASSIFIED**

PE NUMBER: 0207412F  
 PE TITLE: Control and Reporting Center (CRC)

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0207412F Control and Reporting Center (CRC)</b>
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	24.108	58.894	52.508	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
485L Theater Air Control System Imp (TACSI)	24.108	58.894	9.989	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5294 Theater Air Control System Improvement - Radar (TACSI-R)	0.000	0.000	42.519	0.000	0.000	0.000	0.000	0.000	0.000	0.000

In FY 2008, this PE was renamed Control and Reporting Center (CRC) [formerly Modular Control System (MCS)].

**(U) A. Mission Description and Budget Item Justification**

This budget activity funds development of mobile ground-based command and control (C2) capabilities of the Control and Reporting Center (CRC) program. The CRC is identified as a component of the Integrated Air Missile Defense Family of Systems that defends the Homeland and US national interests at home and abroad by negating an adversary's ability to achieve adverse effects from their air and missile capabilities. The CRC mission is to provide battlespace awareness and tactical battle management command and control (BMC2) in an assigned area. It is a ground-based theater air control system (TACS) surveillance and BMC2 element. It consists of facilities, equipment, and people and is a tailorable, modular, transportable, sustainable and persistent weapon system employed at the tactical level to support air and surface operations. Currently, the CRCs are fully employed in Operations IRAQI FREEDOM, ENDURING FREEDOM, and NOBLE EAGLE.

The CRC projects include development and modernization of Theater Air Control Systems Improvement (TACSI) capabilities and the Three-Dimensional Expeditionary Long-Range Radar (3DELRR). TACSI efforts include, but are not limited to the AN/TYQ-23 Operations Module (OM), AN/TPS-75 Long-Range Surveillance Radar and the AN/TRC-215 Remote Radio Secure Voice System (RRSVS) that may be tasked across the full range of military operations. AN/TYQ-23 OM is a low source/high demand (LS/HD) deployable ground-based C2 asset. This automated, computer-based information system provides operators the real-time battlespace picture necessary to plan, direct, and control tactical air operations and airspace management tasks. AN/TRC-215 RRSVS is a mobile, vehicle-mounted voice radio and OM-interface unit. The RRSVS allows real-time, secure voice communication between aircraft operating in the battlespace and ground-based BMC2 operators located in the OM of the CRC. The AN/TRC-215 is typically deployed to a remote area which can extend the CRCs radio coverage beyond line of sight (BLOS) using organic SATCOM capabilities.

The 3DELRR program is developing a replacement for the current legacy AN/TPS-75 radar. 3DELRR will be the principal USAF long-range, ground-based sensor for detecting, identifying, tracking, and reporting aircraft and missiles in support of the Joint Forces Air Component Commander (JFACC) through the Ground Theater Air Control System (GTACS). The primary mission of the 3DELRR will be to provide long-range surveillance, control of aircraft, theater ballistic missile detection and Combat Identification (CID). The 3DELRR will respond to the operational need to detect and report highly maneuverable, small radar cross section targets to enable battlespace awareness while at the same time mitigating the reliability, maintainability, and sustainability issues plaguing the AN/TPS-75 radar system. Ongoing planning and associated activities will take place to prevent and overcome diminishing manufacturing sources and obsolescence issues as required.

The program is in Budget Activity 7 because it provides funding for the modernization of currently existing and operating systems.

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207412F Control and Reporting Center (CRC)

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	24.791	60.590	21.163
(U) Current PBR/President's Budget	24.108	58.894	52.508
(U) Total Adjustments	-0.683	-1.696	
(U) Congressional Program Reductions			
Congressional Rescissions		-1.696	
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer	-0.683		
(U) <b><u>Significant Program Changes:</u></b>			
- Funding increased from FY08 (PB09/10) to FY09 (PB09/10) in order to start technology development for the Three-Dimensional Expeditionary Long-Range Radar (3DELLR) program. This effort was formerly referred to as the Radar Replacement effort.			
- FY10 funding increased from PB09 to PB10 to fully fund 3DELLR technology development.			

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>				<b>PE NUMBER AND TITLE</b> <b>0207412F Control and Reporting Center (CRC)</b>				<b>PROJECT NUMBER AND TITLE</b> <b>485L Theater Air Control System Imp (TACSI)</b>		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
485L Theater Air Control System Imp (TACSI)	24.108	58.894	9.989	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

Beginning in FY10, within PE 0207412F, partial funding was transferred from Project Number 485L to Project Number 5294 to continue development of the AN/TPS-75 replacement/updgrade, known as Three-Dimensional Expeditionary Long-Range Radar (3DELRR). This realignment of funding has moved the associated 3DELRR Evolutionary Upgrades, Program Support & Systems Engineering/Technical Support to a separate Project Number (5294).

**(U) A. Mission Description and Budget Item Justification**

The Control and Reporting Center (CRC) program element provides development and modernization of mobile ground-based command and control (C2) capabilities. The CRC is a ground-based theater air control system (TACS) surveillance and battle management command and control (BMC2) element. It consists of facilities, equipment, and people. It is a tailorable, modular, transportable, sustainable, and persistent weapon system employed at the tactical level to support air and surface operations. The CRC projects include development of Theater Air Control Systems Improvement (TACSI) capabilities and the Three-Dimensional Expeditionary Long-Range Radar (3DELRR). Currently USAF CRCs are fully employed in Operations IRAQI FREEDOM, ENDURING FREEDOM, and NOBLE EAGLE.

The TACSI project develops and modernizes software and hardware to make the CRC a viable BMC2 element. These efforts include, but are not limited to, the development and modernization of the AN/TYQ-23 Operations Module (OM) and the AN/TRC-215 Remote Radio Secure Voice System (RRSVS). AN/TYQ-23 OM is a low source/high demand (LS/HD) rapidly deployable ground-based C2 asset. This automated, computer-based information system provides operators the real-time battlespace picture necessary to plan, direct, and control tactical air operations and airspace management tasks. AN/TRC-215 RRSVS is a mobile, vehicle-mounted voice radio and OM-interface unit. The RRSVS allows real-time, secure voice communication between aircraft operating in the battlespace and ground-based battle management C2 operators located in the OM of the CRC. OMs and RRSVS units are currently deployed world-wide in support of ongoing operations.

In the absence of a replacement C2 system, Service Life Extension Program (SLEP) efforts to provide capability upgrades/improvements such as associated Mode 5/Mode S passive and/or active Identify Friend or Foe (IFF), are being developed for the CRC. Beginning in FY10, activities will include, but not be limited to, studies, analysis, design and prototype, documentation, testing, and production to support both current program planning and execution and future program planning.

The program is in Budget Activity 7 because it provides funding for the modernization of currently existing and operating systems.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Continue development & delivery of evolutionary upgrades to the CRC to include, but not limited to, advanced planning, Modular Control System (MCS) upgrades, enhanced radio/radar/data link remoting, transition of Area Cruise Missile Defense (ACMD) technology into CRC, integrating evolutionary upgrades into CRC, and AN/TPS-75 sensor replacement/upgrade -- known as Three-Dimensional Expeditionary Long-Range Radar (3DELRR).	18.881	52.298	8.525
(U) Test and evaluation support	0.000	0.200	0.322

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0207412F Control and Reporting Center (CRC)</b>	<b>PROJECT NUMBER AND TITLE</b> <b>485L Theater Air Control System Imp (TACSI)</b>
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<b>(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Continue Program Support (i.e., travel, supplies, equipment, miscellaneous)	0.324	1.141	0.250
(U) Continue Systems Engineering/Technical Support	4.903	5.255	0.892
(U) Total Cost	24.108	58.894	9.989

<b>(U) <u>C. Other Program Funding Summary (\$ in Millions)</u></b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) OPAF PE 0207412F (Other Procurement Air Force, WSC 833040, Theater Air Control System Improvement	24.881	31.190	17.512						Continuing	TBD

**(U) D. Acquisition Strategy**  
The CRC is utilizing an incremental development and acquisition strategy to further advance C2 capabilities supporting future aerospace operations.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>				<b>PE NUMBER AND TITLE</b> <b>0207412F Control and Reporting Center (CRC)</b>				<b>PROJECT NUMBER AND TITLE</b> <b>485L Theater Air Control System Imp (TACSI)</b>				
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(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
Development of Evolutionary Upgrades - Integration, contractor testing & system delivery, BCC	MIPR	NAWC/Aircra ft Division, St. Inigoes, MD	16.907	5.528	Oct-07						22.435	22.570
Development of Evolutionary Upgrades - Incremental Development, BCC	CPIF & CPAF/SS	Thales Raytheon Systems, Brea, CA	21.072	4.316	Dec-07						25.388	25.032
Development of Evolutionary Upgrades - BCS-F	CPIF	Thales Raytheon Systems, Brea, CA	0.000	4.958	Nov-08						4.958	23.640
Development of Evolutionary Upgrades - TBD	TBD	TBD				25.215	Mar-09				25.215	13.369
Development of Evolutionary Upgrades - Remote Radio Spiral 3	MIPR	AFRL, Rome, NY	2.931	0.470	Jan-08	0.490	Nov-08	0.525	Nov-09	Continuing	TBD	TBD
Development of Evolutionary Upgrades - Mode 5/S, Study	MIPR	84TH SCSG, Hill AFB, UT		0.323	Feb-08						0.323	0.323
Development of Evolutionary Upgrades - Mode 5/S	TBD	TBD						3.500	Mar-10		3.500	
Development of Evolutionary Upgrades - Operations Modules (OMs) V5 Service Life Extension Program (SLEP)	T&M	CSC Corp, Falls Church, VA				0.308	Mar-09			Continuing	TBD	TBD
Development of Evolutionary Upgrades - Operations Modules (OMs) V5 Service Life Extension Program (SLEP)	FFP	309th Maintenance Wing, Ogden ALC, UT				0.956	Jun-09	4.000	Mar-10		4.956	
Development of Evolutionary Upgrades - CRC Analysis of Alternatives Study	T&M	Booz Allen Hamilton, Inc., McLean, VA				0.300	Nov-08				0.300	0.300
Development of Evolutionary Upgrades - CRC Analysis of Alternatives	T&M	Booz Allen Hamilton, Inc., McLean, VA				1.900	May-09	0.500	Nov-09		2.400	1.300
Development of Evolutionary Upgrades - Analysis of Alternatives, 3DELRR	T&M	Booz Allen Hamilton, Inc., McLean, VA				0.562	Nov-08				0.562	
Development of Evolutionary Upgrades - Risk Reduction, 3DELRR	MIPR	WPAFB, OH		2.593	Mar-08					Continuing	TBD	TBD
Development of Evolutionary Upgrades - Risk Reduction, 3DELRR	MIPR	Naval Research		0.305	Aug-08	0.150	Nov-08			Continuing	TBD	TBD

R-1 Line Item No. 146

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Project 485L

Exhibit R-3 (PE 0207412F)

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis										DATE May 2009		
BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0207412F Control and Reporting Center (CRC)				PROJECT NUMBER AND TITLE 485L Theater Air Control System Imp (TACSI)				
		Laboratory, Washington, DC										
Development of Evolutionary Upgrades - Risk Reduction, 3DELRR	FFP	MIT/Lincoln Laboratory, Lexington, MA	0.350	Aug-08	2.318	Dec-08			Continuing	TBD	TBD	
Development of Evolutionary Upgrades - Test Planning, 3DELRR	MIPR	46TH TS, EGLIN AFB, FL	0.037	Jun-08	0.308	Dec-08			Continuing	TBD	TBD	
Development of Evolutionary Upgrades - Technology Demonstration, 3DELRR	TBD	TBD			19.791	May-09			Continuing	TBD	TBD	
Subtotal Product Development			40.910	18.880	52.298		8.525		Continuing	TBD	TBD	
Remarks:												
(U) <u>Support</u>												
Program Office Support	Various	Various	1.117	0.324	Oct-07	1.141	Oct-08	0.250	Oct-09	Continuing	TBD	TBD
Systems Engineering	FFP	MITRE, Bedford MA	4.113	1.748	Dec-07	1.705	Dec-08	0.322	Oct-09	Continuing	TBD	TBD
Technical Support	T&M	Various	3.027	3.156	Dec-07	3.550	Dec-08	0.570	Dec-09	Continuing	TBD	TBD
Subtotal Support			8.257	5.228		6.396		1.142		Continuing	TBD	TBD
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
46th Test Wing/Other Test Activity	Various	Various	0.538			0.200	Dec-08	0.322	Dec-09		1.060	0.591
Subtotal Test & Evaluation			0.538	0.000		0.200		0.322		0.000	1.060	0.591
Remarks:												
(U) Total Cost			49.705	24.108		58.894		9.989		Continuing	TBD	TBD

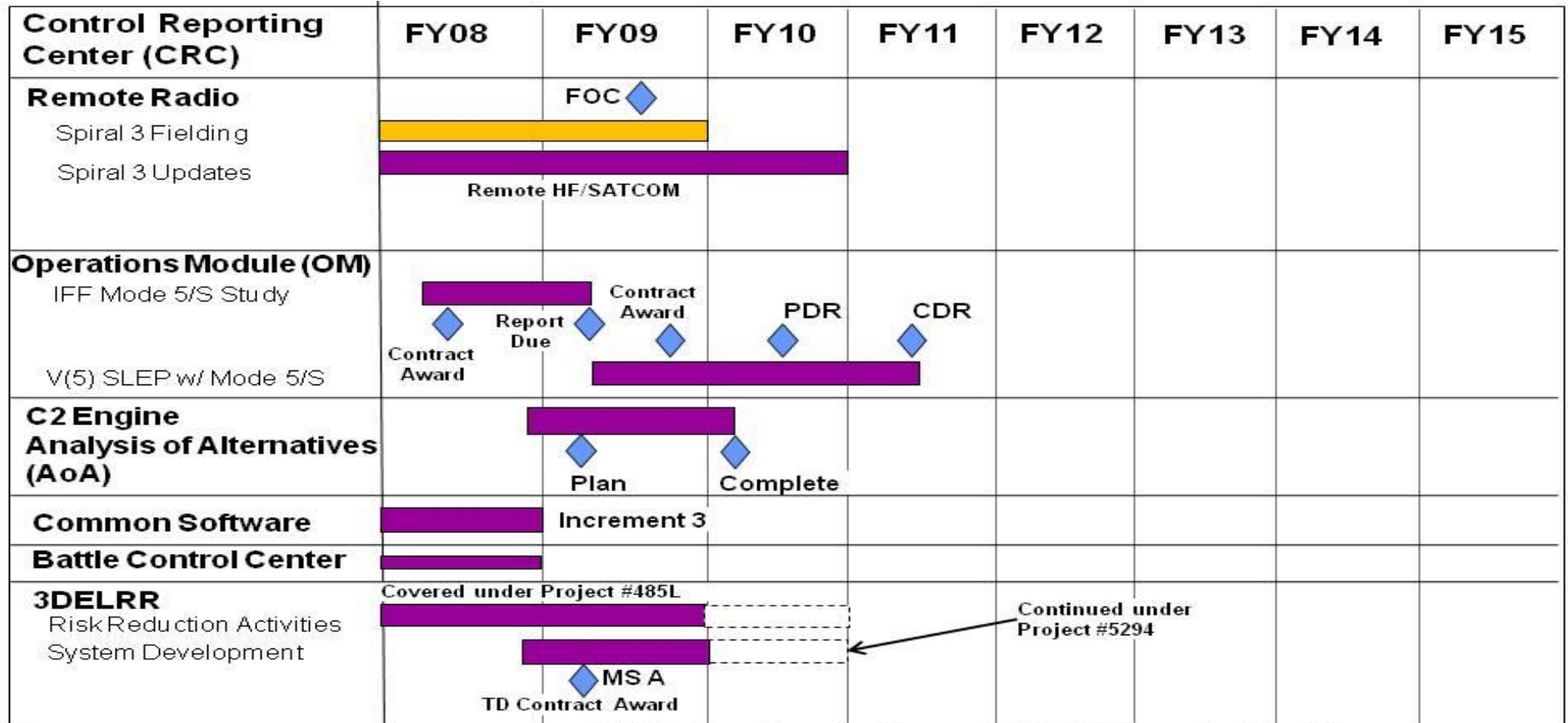
Exhibit R-4, RDT&E Schedule Profile

DATE  
May 2009

BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0207412F Control and Reporting Center (CRC)

PROJECT NUMBER AND TITLE  
485L Theater Air Control System Imp (TACSI)



- ◆ Major Event/Milestone
- Design/Development
- Production/Fielding
- Development Test/Operational Test (DT/OT)

3DELRR: Three-Dimensional Expeditionary Long-Range Radar  
C2: Command and Control  
CDR: Critical Design Review  
FOC: Full Operational Capability  
HF: High Frequency  
IFF: Identification Friend or Foe

IOC: Initial Operational Capability  
JTRS: Joint Tactical Radio System  
MS: Milestone  
PDR: Preliminary Design Review  
SLEP: Service Life Extension Program  
SATCOM: Satellite Communication  
TD: Technology Demonstration  
TIM: Technical Interchange Meeting

As of Apr 2009

Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0207412F Control and Reporting Center (CRC)</b>	PROJECT NUMBER AND TITLE <b>485L Theater Air Control System Imp (TACSI)</b>
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(U) <u>Schedule Profile</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Remote Radio Spiral 3 Fielding FOC		3Q	
(U) Remote Radio Spiral 3 HF/SATCOM IOC Design/Development	1-4Q	1-4Q	1-4Q
(U) OM IFF Mode 5/S Study	2-4Q	1-2Q	
(U) OM v(5) SLEP with Mode 5/S Design/Development		2-4Q	1-4Q
(U) OM v(5) SLEP with Mode 5/S PDR			2Q
(U) Common Software, Increment 3, Design/Development	1-4Q		
(U) BCC Design/Development	1-4Q		
(U) 3DELRR Risk Reduction	1-4Q	1-4Q	
(U) 3DELRR Milestone A		3Q	



## Exhibit R-2a, RDT&amp;E Project Justification

DATE

May 2009

BUDGET ACTIVITY		PE NUMBER AND TITLE						PROJECT NUMBER AND TITLE		
<b>07 Operational System Development</b>		<b>0207412F Control and Reporting Center (CRC)</b>						<b>5294 Theater Air Control System Improvement - Radar (TACSI-R)</b>		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5294 Theater Air Control System Improvement - Radar (TACSI-R)	0.000	0.000	42.519	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

In FY08 & FY09, the Theater Air Control System Improvement - Radar (TACSI-R) Project, also known as Three Dimensional Expeditionary Long Range Radar (3DELRR), continues under Project 485L, Theater Air Control System Imp (TACSI).

Beginning in FY10, within PE 0207412F, partial funding was transferred from Project Number 485L, Project Title Control and Reporting Center (CRC), to Project Number 5294, Project Title Theater Air Control System Improvement - Radar (TACSI-R), to continue development of the AN/TPS-75 sensor replacement/upgrade, known as Three Dimensional Expeditionary Long Range Radar (3DELRR).

(U) **A. Mission Description and Budget Item Justification**

The 3DELRR program is developing a replacement for the current legacy AN/TPS-75 radar. 3DELRR will be the principal USAF long-range, ground-based sensor for detecting, identifying, tracking, and reporting aircraft and missiles in support of the Joint Forces Air Component Commander (JFACC) through the Ground Theater Air Control System (GTACS). The primary mission of the 3DELRR will be to provide long-range surveillance, control of aircraft, and theater ballistic missile detection and Combat Identification (CID). The 3DELRR will respond to the operational need to detect and report highly maneuverable, small radar cross section targets to enable battlespace awareness while at the same time mitigating the reliability, maintainability, and sustainability issues plaguing the AN/TPS-75 radar system. The 3DELRR will provide air controllers with a precise, real-time air picture of sufficient quality to conduct close control of individual aircraft under a wide range of environmental and operational conditions. In the case of theater missile defense operations, the 3DELRR will have the capability to detect, track, and disseminate target information to respective command and control nodes such as the CRC to disseminate for warning and engagement. Similarly, the joint targeting process will benefit from trajectory information provided by the 3DELRR, which will include launch and impact location.

In FY10, the 3DELRR Project Office will continue its contracted Technology Development (TD) phase efforts. 3DELRR acquisition activities include, but are not limited to, system requirements analysis, modeling and simulation, risk reduction, acquisition planning, capability demonstrations, preliminary design development, software and hardware component-level development, test and evaluation, and program protection planning. The TD phase will also produce the 3DELRR operational and technical requirements baseline and one or more preliminary system designs. Capability Demonstrations will verify that all component technologies meet Defense Department readiness requirements and technical reviews will appraise the design approach and verify it responds to the requirements baseline. Following the TD phase, emphasis will then shift toward system-level development and risk reduction work leading to a single, mature system design. Activities also include studies and analysis to support both current program planning and execution and future program planning.

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0207412F Control and Reporting Center (CRC)</b>	<b>PROJECT NUMBER AND TITLE</b> <b>5294 Theater Air Control System Improvement - Radar (TACSI-R)</b>
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<b>(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Continue development of AN/TPS-75 sensor replacement -- known as 3DELRR. Operational and technical requirements will be baselined, and emphasis will shift toward development and risk reduction work leading toward a system design. 3DELRR acquisition activities during this phase include, but are not limited to, system requirements analysis, modeling and simulation, risk reduction, acquisition planning, capability demonstrations, preliminary design development, software and hardware component-level development, program protection planning and maturing the life-cycle cost estimate. Capability Demonstrations will verify that all technologies meet readiness requirements and technical reviews will mature the design solution and verify it satisfies requirements.			36.424
(U) Continue Program Support (i.e., travel, supplies, equipment, miscellaneous)			1.385
(U) Continue Systems Engineering/Technical Support			4.710
(U) Total Cost	0.000	0.000	42.519

<b>(U) <u>C. Other Program Funding Summary (\$ in Millions)</u></b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	

(U) N/A

(U) **D. Acquisition Strategy**  
 The Three Dimensional Expeditionary Long Range Radar (3DELRR) Project is using multiple full and open competitions to further advance C2 capabilities supporting battlefield command and control.

Exhibit R-3, RDT&E Project Cost Analysis

DATE

May 2009

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE				
<b>07 Operational System Development</b>				<b>0207412F Control and Reporting Center (CRC)</b>					<b>5294 Theater Air Control System Improvement - Radar (TACSI-R)</b>				
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2008 Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date	Cost to Complete	Total Cost	Target Value of Contract	
(U) <u>Product Development</u>													
Development of Evolutionary Upgrades - Analysis of Alternatives, 3DELRR	T&M	Booz Allen Hamilton, Inc., McLean, VA						1.438	Nov-09		1.438		
Development of Evolutionary Upgrades - Risk Reduction, 3DELRR	TBD	TBD						1.550	Nov-09	Continuing	TBD	TBD	
Development of Evolutionary Upgrades - Risk Reduction, 3DELRR	FFP	MIT/Lincoln Laboratory, Lexington, MA						1.800	Nov-09		1.800		
Development of Evolutionary Upgrades - Test Planning, 3DELRR	MIPR	46TH TS, Eglin AFB, FL						0.900	Oct-09	Continuing	TBD	TBD	
Development of Evolutionary Upgrades - Technology Demonstration (TD), 3DELRR	TBD	TBD						30.736	Nov-09	Continuing	TBD	TBD	
Subtotal Product Development			0.000	0.000		0.000		36.424		Continuing	TBD	TBD	
Remarks:													
(U) <u>Support</u>													
Program Office Support	Various	Various						1.385	Oct-09	Continuing	TBD	TBD	
Systems Engineering	T&M	MITRE, Bedford, MA						1.772	Oct-09	Continuing	TBD	TBD	
Technical Support	T&M	Various						2.938	Dec-09	Continuing	TBD	TBD	
Subtotal Support			0.000	0.000		0.000		6.095		Continuing	TBD	TBD	
Remarks:													
(U) <u>Test &amp; Evaluation</u>													
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000	
Remarks:													
(U) <u>Management</u>													
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000	
Remarks:													
(U) Total Cost			0.000	0.000		0.000		42.519		Continuing	TBD	TBD	

Exhibit R-4, RDT&E Schedule Profile

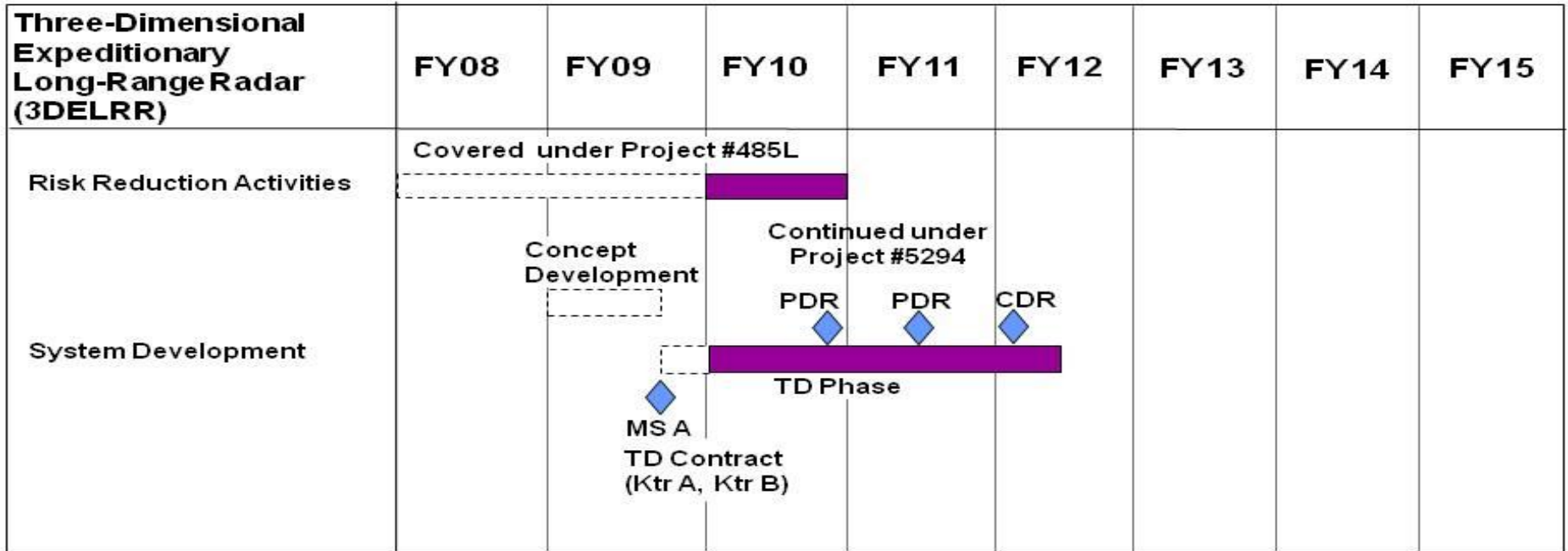
DATE

May 2009

BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0207412F Control and Reporting  
Center (CRC)

PROJECT NUMBER AND TITLE  
5294 Theater Air Control System  
Improvement - Radar (TACSI-R)



In FY08 & FY09, Three-Dimensional Expeditionary Long-Range Radar (3DELRR) was included as part of Project 485L, Theater Air Control System Improvement (TACSI).

Beginning in FY10, within PE 0207412F, partial funding was transferred from Project Number 485L, Project Title Control and Reporting Center (CRC), to Project Number 5294, Project Title Theater Air Control System Improvement - Radar (TACSI-R), to continue development of the AN/TPS-75 sensor replacement/upgrade, known as Three-Dimensional Expeditionary Long-Range Radar (3DELRR).

-  Major Event/Milestone
-  Design/Development
-  Development Test/Operational Test (DT/OT)
- EMD: Engineering and Manufacturing Development
- Ktr: Contractor
- MS: Milestone
- TD: Technology Development
- TRR: Test Readiness Review

As of Apr 2009

Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207412F Control and Reporting Center (CRC)

PROJECT NUMBER AND TITLE

5294 Theater Air Control System Improvement - Radar (TACSI-R)

(U) Schedule Profile

FY 2008

FY 2009

FY 2010

(U) 3DELRR On-going Risk Reduction & System Development

1-4Q

1-4Q

1-4Q

(U) 3DELRR MS A

3Q

(U) 3DELRR Technology Development Phase

3-4Q

1-4Q

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0207417F Airborne Warning and Control System (AWACS)</b>
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	146.341	125.710	176.040	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
411L Airborne Warning & Control System (AWACS)	146.341	125.710	176.040	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

**(U) A. Mission Description and Budget Item Justification**

Mission: AWACS is the premier airborne platform providing command and control (C2)/battle management (BM) to Commander In Chief and combatant commander tasking for Joint, Allied, and Coalition operations, Humanitarian Relief, and Homeland Defense. AWACS provides a real-time picture of friendly, neutral, and hostile air activity. Its capabilities include all-altitude/all-weather surveillance of the battle space; early warning of enemy actions; a real-time ability to find, fix, track, and assess airborne or maritime threats; and detection, location, and identification of electronic emitters.

Budget Justification: This funding is in Budget Activity 7, Operational Systems Development, since the efforts support a fielded, operational weapon system. This funding will be used to investigate, develop, and integrate system improvements to enable the E-3 AWACS to remain an effective airborne battle management and surveillance system for command and control of combat forces and for strategic defense of the U.S. The efforts will pursue synergies and leverage the efforts of other U.S. 707-based airframes as well as the International AWACS partners that operate the 707 AWACS (NATO, United Kingdom, France, and Saudi Arabia). The efforts will coordinate with and participate in projects developing international standards (including NATO standards) to ensure joint, allied, and coalition interoperability.

This program element funds the following modernization efforts (RDT&E, AF):

1. Block 40/45 is replacing AWACS 1970's vintage mission systems that are experiencing Diminishing Manufacturing Sources (DMS) issues, are difficult and expensive to upgrade, and limit overall AWACS system performance. The Block 40/45 upgrade will improve quality and timeliness of sensor data to the shooter, improve Combat Identification (CID), improve AWACS contribution to Time Critical Targeting via Data Link Infrastructure, improve electronic support measures processing, and enable more effective, faster upgrades via an open systems, Ethernet based architecture. The upgrade will also update the ground support infrastructure including training systems.

Block 40/45 completed mission system testing and an operational assessment in FY08, met a Milestone C in FY09 and expects to award a production contract later in FY09.

2. The Next Generation Identification Friend or Foe (NGIFF) Program provides AWACS with enhanced IFF interrogator operation to add a more secure Mode 5 capability. NSA declared IFF Mode 4 unsecure and obsolete on 5 Nov 2003. Joint Requirements Oversight Council Memo 047-07 requires IFF Mode 5 interrogation capability by FY14. The new Mode 5 interrogation capability extends the effective range of the AWACS interrogator, while helping discriminate against closely spaced cooperative targets.

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

May 2009

## BUDGET ACTIVITY

**07 Operational System Development**

## PE NUMBER AND TITLE

**0207417F Airborne Warning and Control System (AWACS)**

This program met a Milestone B in FY08 and will develop and integrate a basic Mode 5 capability on Block 30/35 starting in FY08 and full Mode 5 on Block 40/45 starting in FY10. Hardware will be common between the two platforms.

NGIFF will also integrate Mode S, a civilian air traffic control capability residing in the NGIFF hardware, as funding allows.

3. NAVWAR (Navigation Warfare) is mandated by Chairman Joint Chiefs Staff Instruction (CJCSI) 6140.01A (31 Mar 04) and requires all DoD Global Positioning System (GPS) users to incorporate National Security Agency (NSA) Selective Availability Anti-Spoofing Module (SAASM) provisions for the transition to 'black keys'; to eliminate requirements to acquire GPS satellites using the civil signal; and to incorporate new technology into the navigation sensor.

In FY08 the program resolved some integration difficulties that surfaced during testing and successfully passed Milestone C in July. The program will begin production in FY09 and continue to IOC in 1Q CY10 and FOC in CY11. The production phase began in Sept 08.

4. DRAGON (DMS Replacement of Avionics for Global Operations and Navigation) completes the FAA/International Civil Aviation Organization (ICAO)/EUROCONTROL mandated air traffic control system upgrades and equips the E-3 fleet with flight instrument and other avionics capabilities that will allow AWACS to comply with mandated global Required Navigation Performance (RNP), surveillance and communication standards. Non-compliance will result in airspace restrictions and denials that will impact AWACS ability to support worldwide responses to situations requiring immediate on-scene command and control (C2 battle management). The DRAGON modifications include the addition of data link communications, upgrade or replacement of emergency locating technologies, voice and data link digital radios, improved visual displays and flight management system, as well as automatic position reporting via data link. Replacement of critical avionics subsystems that become unsustainable beginning in 2010, are included in the DRAGON program. The common requirements of the US and NATO AWACS drives this program towards a cooperative development effort and the US is currently pursuing a cooperative risk reduction effort with NATO. Technology Demonstration (TD) for DRAGON began in FY08, and the DRAGON Engineering and Manufacturing Development (EMD) phase is planned as a US and NATO cooperative effort which begins in FY10.

5. Net-Centric Capability (NCC): FY10 will begin Technology Development (TD) for improving net-centric enabling capabilities such as Internet Protocol (IP) enabled communications links, airborne network management systems, gateways, Information Assurance (IA), and Service-Oriented Architecture (SOA) based C2 applications to support collaborative efforts with other sensor platforms as well as with US and Coalition ground and air C2 nodes. Net-centric capabilities will be developed through prototyping, experimentations, and participation in Joint and Coalition exercises such as Empire Challenge (EC) and Coalition Warrior Interoperability Demonstrations (CWIDs).

6. Reliability, Maintainability and Availability (RM&A) and Support the War Fighter (STWF): RM&A - STWF efforts support AWACS capability to create and sustain the force. Examples of these activities include, but are not limited to:

- o Designing, developing, and modernizing equipment and systems to ensure that AWACS can respond to urgent wartime/contingency acquisition requirements (e.g. Urgent Operational Needs (UONs) and Wartime Urgent & Compelling Needs (WUCNs).
- o Upgrading key capabilities to meet contingency needs, modernizing test systems, integrating battle management and data link enhancements, and supporting RM&A initiatives.
- o Improving the Mission Capable (MC) rate through RM&A analysis and development projects to provide system improvements that help meet or exceed the



## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

May 2009

## BUDGET ACTIVITY

**07 Operational System Development**

## PE NUMBER AND TITLE

**0207417F Airborne Warning and Control System (AWACS)**

required MC rate. These efforts focus on increasing reliability of the air vehicle, command and control systems, voice and data communications systems, computer, sensor systems and infrastructure improvements.

- o Solving diminishing manufacturing sources (DMS) logistics problems.
- o Inserting new technologies with the aim of reducing maintenance man-hours along with periodic depot maintenance (PDM) improvements to increase aircraft availability.

New and Ongoing RM&A Efforts (through FY10):

ESM LMP is scheduled to complete development and begin a transition to production in FY10

RM&A Efforts completed RDT&E and transitioned to production/installation (through FY10):

Fuel Quantity Indication System began production and install in FY07

Low Power Filters completed RDT&E in FY07, production starts in FY09 with FY08 GWOT funds.

Solid State Trigger Pulse Amplifier is scheduled to begin production and installation in FY10

RM&A Efforts Completed or completing production/installation (through FY10):

140KVA Bus Input Power completed installation in FY07

Falcon View completed installation in FY07

DC Power Reliability Improvement completed in FY08

Auxiliary Power Unit Insulation Replacement is scheduled to complete in FY09

High Voltage Filters is scheduled to complete installation in FY09

Wideband Klystron Power Amplifier is scheduled to complete installation in FY09

Rotary Couplers is scheduled to complete installation in FY10

This program element funds the following efforts to synchronize modernization requirements across the entire weapon system-from depot and field test equipment, to maintenance trainers, to simulators, to integration labs, to the TS-3 Developmental Test and Evaluation Aircraft (RDT&E, AF):

7. Test System-3/AWACS Integration Test Support (AITS): The E-3 AWACS Developmental Test and Evaluation (DT&E) aircraft, Test System 3 (TS-3, tail number 73-1674) and the Avionics Integration Laboratory (AIL) are Government owned/contractor managed, maintained and operated system level DT&E assets. These test-ready assets support AWACS modernization, including advanced projects and sustainment projects, and allow AWACS to participate in live-fly (e.g., Joint Expeditionary Force Experiment) and ground-based interoperability testing. These assets also support multiple international Airborne Early Warning and Control (AEW&C) projects on a fee basis, including French, RSAF, UK, Japan, and NATO.

8. The Training, Support, and Infrastructure (TSI) programs cover required cross cutting programs and activities in support of AWACS modernization and enhancement efforts. These include managing the AWACS developmental infrastructure, support for equipment concurrency, modernization planning/analysis, and trainer/simulator integration and concurrency. The E-3 Radar Systems Integration Lab/Software Development Facility (SIL/SDF) is maintained, operated to provide customers with a functioning E-3 radar configuration in support of AWACS US, FMS and International radar development, production, and sustainment programs.

Exhibit R-2, RDT&E Budget Item Justification

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207417F Airborne Warning and Control System (AWACS)

New support equipment technologies and test strategies need to be analyzed to ensure concurrent capability to sustain existing, modified, and upgraded E-3 equipment. Trainer/simulator concurrency analysis and definition is required to ensure trainers and simulators are kept current with the AWACS baseline.

This program element also funds efforts that look toward the future-investigating enhanced capabilities and exploring new mission areas (RDT&E, AF):

9. Command & Control, Intelligence, Surveillance and Reconnaissance (C2ISR) System Improvements: C2ISR System Improvements investigate and develop future capabilities of the AWACS weapon system, or next C2ISR platform. These efforts also include the investigation, analysis and development to assure that AWACS successfully integrates with Joint and Coalition forces in a net-centric environment. Examples of these activities include, but are not limited to:

- o Evaluate emerging operational needs, concepts, and technologies to enable integration of AWACS' capabilities to align with integrated C2ISR network architectures as defined in Joint Vision 2020, Air Expeditionary Force CONOPS, C2 Constellation CONOPS, Air Force CONOPS, and C2ISR Mission area plans.
- o Improving sensors, communications, and multi-sensor integration such as the ability to send, receive, and fuse the air (and ground) picture via data link to fighter aircraft, through rapid prototyping, modeling, simulation, and participation in Joint exercises (e.g., Joint Expeditionary Forces Experiment (JEFX) and Empire Challenge (EC)).
- o Improving the timeliness and accuracy of information passed to/from fighter aircraft in the engagement zone by providing consistent and re-playable post-mission data to provide quicker reaction capabilities to support the air war.
- o Exploring concepts, developing technology, and demonstrating efforts that support continuous improvements and self-protection for C2ISR capabilities of manned & unmanned platforms, space, data links, and advanced Battle Management decision tools.

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	151.593	126.300	170.511
(U) Current PBR/President's Budget	146.341	125.710	176.040
(U) Total Adjustments	-5.252	-0.590	
(U) Congressional Program Reductions		-0.249	
Congressional Rescissions		-0.341	
Congressional Increases			
Reprogrammings	-1.248		
SBIR/STTR Transfer	-4.004		

(U) **Significant Program Changes:**

1. The increase in the Current PBR/President's Budget from FY 2009 to FY 2010 is due to changing from a fee-for-service contract strategy to secure Block 40/45 Mission Crew Trainers to a development and acquisition of a Block 40/45 Mission Crew Trainer capability, and the beginning of the Engineering and Manufacturing Development (EMD) Phase for the DRAGON modification.

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>				<b>PE NUMBER AND TITLE</b> <b>0207417F Airborne Warning and Control System (AWACS)</b>				<b>PROJECT NUMBER AND TITLE</b> <b>411L Airborne Warning &amp; Control System (AWACS)</b>		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
411L Airborne Warning & Control System (AWACS)	146.341	125.710	176.040	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

Mission: AWACS is the premier airborne platform providing command and control (C2)/battle management (BM) to Commander In Chief and combatant commander tasking for Joint, Allied, and Coalition operations, Humanitarian Relief, and Homeland Defense. AWACS provides a real-time picture of friendly, neutral, and hostile air activity. Its capabilities include all-altitude/all-weather surveillance of the battle space; early warning of enemy actions; a real-time ability to find, fix, track, and assess airborne or maritime threats; and detection, location, and identification of electronic emitters.

Budget Justification: This funding is in Budget Activity 7, Operational Systems Development, since the efforts support a fielded, operational weapon system. This funding will be used to investigate, develop, and integrate system improvements to enable the E-3 AWACS to remain an effective airborne battle management and surveillance system for command and control of combat forces and for strategic defense of the U.S. The efforts will pursue synergies and leverage the efforts of other U.S. 707-based airframes as well as the International AWACS partners that operate the 707 AWACS (NATO, United Kingdom, France, and Saudi Arabia). The efforts will coordinate with and participate in projects developing international standards (including NATO standards) to ensure joint, allied, and coalition interoperability.

This program element funds the following modernization efforts (RDT&E, AF):

1. Block 40/45 is replacing AWACS 1970's vintage mission systems that are experiencing Diminishing Manufacturing Sources (DMS) issues, are difficult and expensive to upgrade, and limit overall AWACS system performance. The Block 40/45 upgrade will improve quality and timeliness of sensor data to the shooter, improve Combat Identification (CID), improve AWACS contribution to Time Critical Targeting via Data Link Infrastructure, improve electronic support measures processing, and enable more effective, faster upgrades via an open systems, Ethernet based architecture. The upgrade will also update the ground support infrastructure including training systems.

Block 40/45 completed mission system testing and an operational assessment in FY08, met a Milestone C in FY09 and expects to award a production contract later in FY09.

2. The Next Generation Identification Friend or Foe (NGIFF) Program provides AWACS with enhanced IFF interrogator operation to add a more secure Mode 5 capability. NSA declared IFF Mode 4 unsecure and obsolete on 5 Nov 2003. Joint Requirements Oversight Council Memo 047-07 requires IFF Mode 5 interrogation capability by FY14. The new Mode 5 interrogation capability extends the effective range of the AWACS interrogator, while helping discriminate against closely spaced cooperative targets.

This program met a Milestone B in FY08 and will develop and integrate a basic Mode 5 capability on Block 30/35 starting in FY08 and full Mode 5 on Block 40/45

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

May 2009

BUDGET ACTIVITY

**07 Operational System Development**

PE NUMBER AND TITLE

**0207417F Airborne Warning and Control System (AWACS)**

PROJECT NUMBER AND TITLE

**411L Airborne Warning & Control System (AWACS)**

starting in FY10. Hardware will be common between the two platforms.

NGIFF will also integrate Mode S, a civilian air traffic control capability residing in the NGIFF hardware, as funding allows.

3. NAVWAR (Navigation Warfare) is mandated by Chairman Joint Chiefs Staff Instruction (CJCSI) 6140.01A (31 Mar 04) and requires all DoD Global Positioning System (GPS) users to incorporate National Security Agency (NSA) Selective Availability Anti-Spoofing Module (SAASM) provisions for the transition to 'black keys'; to eliminate requirements to acquire GPS satellites using the civil signal; and to incorporate new technology into the navigation sensor.

In FY08 the program resolved some integration difficulties that surfaced during testing and successfully passed Milestone C in July. The program will begin production in FY09 and continue to IOC in 1Q CY10 and FOC in CY11. The production phase began in Sept 08.

4. DRAGON (DMS Replacement of Avionics for Global Operations and Navigation) completes the FAA/International Civil Aviation Organization (ICAO)/EUROCONTROL mandated air traffic control system upgrades and equips the E-3 fleet with flight instrument and other avionics capabilities that will allow AWACS to comply with mandated global Required Navigation Performance (RNP), surveillance and communication standards. Non-compliance will result in airspace restrictions and denials that will impact AWACS ability to support worldwide responses to situations requiring immediate on-scene command and control (C2 battle management). The DRAGON modifications include the addition of data link communications, upgrade or replacement of emergency locating technologies, voice and data link digital radios, improved visual displays and flight management system, as well as automatic position reporting via data link. Replacement of critical avionics subsystems that become unsustainable beginning in 2010, are included in the DRAGON program. The common requirements of the US and NATO AWACS drives this program towards a cooperative development effort and the US is currently pursuing a cooperative risk reduction effort with NATO. Technology Demonstration (TD) for DRAGON began in FY08, and the DRAGON Engineering and Manufacturing Development (EMD) phase is planned as a US and NATO cooperative effort which begins in FY10.

5. Net-Centric Capability (NCC): FY10 will begin Technology Development (TD) for improving net-centric enabling capabilities such as Internet Protocol (IP) enabled communications links, airborne network management systems, gateways, Information Assurance (IA), and Service-Oriented Architecture (SOA) based C2 applications to support collaborative efforts with other sensor platforms as well as with US and Coalition ground and air C2 nodes. Net-centric capabilities will be developed through prototyping, experimentations, and participation in Joint and Coalition exercises such as Empire Challenge (EC) and Coalition Warrior Interoperability Demonstrations (CWIDs).

6. Reliability, Maintainability and Availability (RM&A) and Support the War Fighter (STWF): RM&A - STWF efforts support AWACS capability to create and sustain the force. Examples of these activities include, but are not limited to:

- o Designing, developing, and modernizing equipment and systems to ensure that AWACS can respond to urgent wartime/contingency acquisition requirements (e.g. Urgent Operational Needs (UONs) and Wartime Urgent & Compelling Needs (WUCNs).
- o Upgrading key capabilities to meet contingency needs, modernizing test systems, integrating battle management and data link enhancements, and supporting RM&A initiatives.
- o Improving the Mission Capable (MC) rate through RM&A analysis and development projects to provide system improvements that help meet or exceed the required MC rate. These efforts focus on increasing reliability of the air vehicle, command and control systems, voice and data communications systems, computer,

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Project 411L

Exhibit R-2a (PE 0207417F)

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

May 2009

## BUDGET ACTIVITY

**07 Operational System Development**

## PE NUMBER AND TITLE

**0207417F Airborne Warning and Control System (AWACS)**

## PROJECT NUMBER AND TITLE

**411L Airborne Warning & Control System (AWACS)**

sensor systems and infrastructure improvements.

- o Solving diminishing manufacturing sources (DMS) logistics problems.
- o Inserting new technologies with the aim of reducing maintenance man-hours along with periodic depot maintenance (PDM) improvements to increase aircraft availability.

New and Ongoing RM&A Efforts (through FY10):

ESM LMP is scheduled to complete development and begin a transition to production in FY10

RM&A Efforts completed RDT&E and transitioned to production/installation (through FY10):

Fuel Quantity Indication System began production and install in FY07

Low Power Filters completed RDT&E in FY07, production starts in FY09 with FY08 GWOT funds.

Solid State Trigger Pulse Amplifier is scheduled to begin production and installation in FY10

RM&A Efforts Completed or completing production/installation (through FY10):

140KVA Bus Input Power completed installation in FY07

Falcon View completed installation in FY07

DC Power Reliability Improvement completed in FY08

Auxiliary Power Unit Insulation Replacement is scheduled to complete in FY09

High Voltage Filters is scheduled to complete installation in FY09

Wideband Klystron Power Amplifier is scheduled to complete installation in FY09

Rotary Couplers is scheduled to complete installation in FY10

This program element funds the following efforts to synchronize modernization requirements across the entire weapon system—from depot and field test equipment, to maintenance trainers, to simulators, to integration labs, to the TS-3 Developmental Test and Evaluation Aircraft (RDT&E, AF):

7. Test System-3/AWACS Integration Test Support (AITS): The E-3 AWACS Developmental Test and Evaluation (DT&E) aircraft, Test System 3 (TS-3, tail number 73-1674) and the Avionics Integration Laboratory (AIL) are Government owned/contractor managed, maintained and operated system level DT&E assets. These test-ready assets support AWACS modernization, including advanced projects and sustainment projects, and allow AWACS to participate in live-fly (e.g., Joint Expeditionary Force Experiment) and ground-based interoperability testing. These assets also support multiple international Airborne Early Warning and Control (AEW&C) projects on a fee basis, including French, RSAF, UK, Japan, and NATO.

8. The Training, Support, and Infrastructure (TSI) programs cover required cross cutting programs and activities in support of AWACS modernization and enhancement efforts. These include managing the AWACS developmental infrastructure, support for equipment concurrency, modernization planning/analysis, and trainer/simulator integration and concurrency. The E-3 Radar Systems Integration Lab/Software Development Facility (SIL/SDF) is maintained, operated to provide customers with a functioning E-3 radar configuration in support of AWACS US, FMS and International radar development, production, and sustainment programs.

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0207417F Airborne Warning and Control System (AWACS)</b>	<b>PROJECT NUMBER AND TITLE</b> <b>411L Airborne Warning &amp; Control System (AWACS)</b>
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New support equipment technologies and test strategies need to be analyzed to ensure concurrent capability to sustain existing, modified, and upgraded E-3 equipment. Trainer/simulator concurrency analysis and definition is required to ensure trainers and simulators are kept current with the AWACS baseline.

This program element also funds efforts that look toward the future-investigating enhanced capabilities and exploring new mission areas (RDT&E, AF):

9. Command & Control, Intelligence, Surveillance and Reconnaissance (C2ISR) System Improvements: C2ISR System Improvements investigate and develop future capabilities of the AWACS weapon system, or next C2ISR platform. These efforts also include the investigation, analysis and development to assure that AWACS successfully integrates with Joint and Coalition forces in a net-centric environment. Examples of these activities include, but are not limited to:

- o Evaluate emerging operational needs, concepts, and technologies to enable integration of AWACS' capabilities to align with integrated C2ISR network architectures as defined in Joint Vision 2020, Air Expeditionary Force CONOPS, C2 Constellation CONOPS, Air Force CONOPS, and C2ISR Mission area plans.
- o Improving sensors, communications, and multi-sensor integration such as the ability to send, receive, and fuse the air (and ground) picture via data link to fighter aircraft, through rapid prototyping, modeling, simulation, and participation in Joint exercises (e.g., Joint Expeditionary Forces Experiment (JEFX) and Empire Challenge (EC)).
- o Improving the timeliness and accuracy of information passed to/from fighter aircraft in the engagement zone by providing consistent and re-playable post-mission data to provide quicker reaction capabilities to support the air war.
- o Exploring concepts, developing technology, and demonstrating efforts that support continuous improvements and self-protection for C2ISR capabilities of manned & unmanned platforms, space, data links, and advanced Battle Management decision tools.

<b>(U) B. Accomplishments/Planned Program (\$ in Millions)</b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Accomplishments/Planned Programs			
(U) Continuing Block 40/45 EMD effort including pre-production efforts and MCTs	92.363	61.770	98.016
(U) Continuing Next Generation Identification Friend or Foe (IFF)	8.206	24.688	19.135
(U) Completing Navigational Warfare (NAVWAR) EMD (FY08 Completion)	0.026	0.000	0.000
(U) Beginning EMD effort on DRAGON in FY10	0.000	0.000	13.167
(U) Beginning Technology Development on Net-Centric Capability (NCC)	0.000	0.000	2.000
(U) Continuing RM&A - Support the War Fighter (STWF) projects	3.299	3.703	7.392
(U) Continuing Test System-3/AITS support and Program Sustaining efforts	24.981	21.258	23.063
(U) Continuing Training, Support and Infrastructure (TSI) efforts	6.398	5.107	5.321
(U) Continuing C2ISR System Improvements and Advanced Projects	11.068	9.184	7.946
(U) Total Cost	146.341	125.710	176.040

**Exhibit R-2a, RDT&E Project Justification**

DATE

**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0207417F Airborne Warning and Control System (AWACS)</b>	PROJECT NUMBER AND TITLE <b>411L Airborne Warning &amp; Control System (AWACS)</b>
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**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to Complete</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>		
(U) AF RDT&E										
(U) Other APPN										
(U) Aircraft Procurement, AF, E-3 Mods (PE 0207417F)	76.834	86.155	76.807						Continuing	TBD
(U) Aircraft Procurement, AF, E-3 Mods (PE 0809731F)			2.456						Continuing	TBD
(U) E-3 Initial Spares, AF	5.875	6.287	10.785						Continuing	TBD

Note: FY2008 APAF, E-3 Mods (PE 27417F) funding totals include \$23.038 in GWOT funding for Low Power Filters.

**(U) D. Acquisition Strategy**

Most major programs (Block 40/45, NAVWAR, TS-3 and lab support) will be sole source to the Boeing Corporation, Seattle, WA.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE  
**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>				PE NUMBER AND TITLE <b>0207417F Airborne Warning and Control System (AWACS)</b>				PROJECT NUMBER AND TITLE <b>411L Airborne Warning &amp; Control System (AWACS)</b>				
<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
<u>(U) Product Development</u>												
(U) Block 40/45 SD&D and Pre-Production	SS/CPAF	Boeing - Seattle, WA	812.520	85.017	Jun-08	48.685	Oct-08	82.568	Oct-09	Continuing	TBD	TBD
(U) Next Generation Identification Friend or Foe (IFF)	CPFF/CPIF	Boeing - Seattle, WA	1.002	7.247	Oct-08	21.960	Feb-09	16.820	Nov-09	Continuing	TBD	TBD
(U) NAVWAR	SS/Multiple	Boeing - Seattle, WA	12.905	0.026	Mar-08	0.000		0.000		0.000	12.931	10.250
(U) DRAGON	TBD	TBD	0.000	0.000		0.000		10.663	Mar-10	Continuing	TBD	TBD
(U) Net-Centric Capability (NCC)	TBD	Boeing - Seattle, WA	0.000	0.000		0.000		2.000	Oct-09	Continuing	TBD	TBD
(U) RM&A - Support the War Fighter (STWF)	TBD	TBD	0.000	3.299	Jan-08	4.273	Jan-09	7.609	Jan-10	Continuing	TBD	TBD
(U) C2ISR System Improvement	SS/FPIF & CPAF	Boeing - Seattle, WA	75.478	5.145	Oct-07	9.141	Oct-08	7.934	Oct-09	Continuing	TBD	TBD
(U) Prior Platform Modifications	Multiple	Boeing - Seattle, WA	1,590.650								1,590.650	
Subtotal Product Development			2,492.555	100.734		84.059		127.594		Continuing	TBD	TBD
Remarks:												
<u>(U) Support</u>												
(U)Support/ITSP MITRE, travel, other	Competitive Multiple	AWACS Program Office - Hanscom AFB, MA	347.717	22.706	Oct-07	20.271	Oct-08	25.197	Oct-09	Continuing	TBD	TBD
Subtotal Support			347.717	22.706		20.271		25.197		Continuing	TBD	TBD
Remarks:												
<u>(U) Test &amp; Evaluation</u>												
(U) Test System-3 AWACS Development and Production Test (ADAPT) Contract/ AWACS Integration Test Support (AITS) Contract / Other test activities	SS/Multiple	Boeing - Seattle, WA	147.129	16.503	Oct-07	16.297	Oct-08	17.935	Oct-09	Continuing	TBD	TBD
(U) Training, Support & Infrastructure (TSI)	SS/Multiple	Boeing - Seattle, WA	10.307	6.398	Jan-08	5.083	Jan-09	5.314	Jan-10	Continuing	TBD	TBD
Subtotal Test & Evaluation			157.436	22.901		21.380		23.249		Continuing	TBD	TBD
Remarks:												
<u>(U) Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			2,997.708	146.341		125.710		176.040		Continuing	TBD	TBD



Exhibit R-4, RDT&E Schedule Profile

DATE  
May 2009

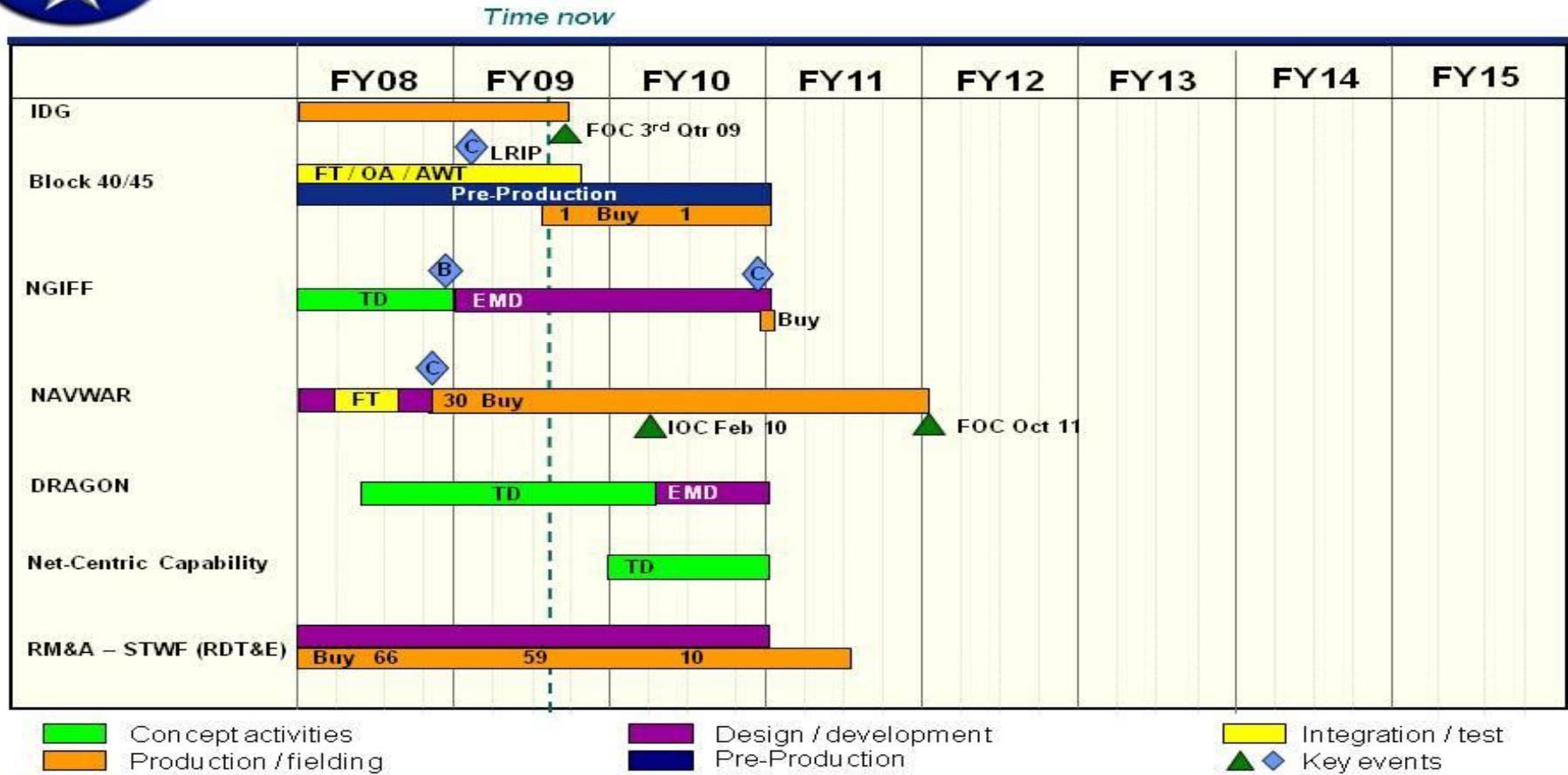
BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0207417F Airborne Warning and Control System (AWACS)

PROJECT NUMBER AND TITLE  
411L Airborne Warning & Control System (AWACS)



# AWACS Schedule



**FY10 Staffer Brief**

Depicted by installation/production flow

R-1 Line Item No. 147

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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0207417F Airborne Warning and Control System (AWACS)</b>	<b>PROJECT NUMBER AND TITLE</b> <b>411L Airborne Warning &amp; Control System (AWACS)</b>
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	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) <b><u>Schedule Profile</u></b>			
(U) IDG Production	1-4Q	1-3Q	
(U) IDG FOC		3Q	
(U) 40/45 Flight Test/Operational Assessment (FT / OA)	1-4Q		
(U) 40/45 Airworthiness Testing (AWT)	4Q	1-4Q	
(U) 40/45 Pre-Production	1-4Q	1-4Q	1-4Q
(U) 40/45 LRIP Milestone C		1Q	
(U) 40/45 Production		3-4Q	1-4Q
(U) Next Generation IFF Technology Development Completion	1-4Q		
(U) Next Generation IFF Milestone B	4Q		
(U) Next Generation IFF EMD		1-4Q	1-4Q
(U) Next Generation IFF Milestone C			4Q
(U) Next Generation IFF Production			4Q
(U) NAVWAR EMD	1-4Q		
(U) NAVWAR Flight Test	2-3Q		
(U) NAVWAR Milestone C	4Q		
(U) NAVWAR Production	4Q	1-4Q	1-4Q
(U) NAVWAR IOC			2Q
(U) DRAGON Technology Development	2-4Q	1-4Q	1-2Q
(U) DRAGON EMD			2-4Q
(U) Net-Centric Capability (NCC) Technology Development			1-4Q
(U) RM&A - Support the War Fighter (STWF)	1-4Q	1-4Q	1-4Q

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PE NUMBER: 0207418F  
 PE TITLE: TAC AIRBORNE CONTROL SYSTEM

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0207418F TAC AIRBORNE CONTROL SYSTEM</b>
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	3.366	1.526	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5234 TACP Support	3.366	1.526	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

**(U) A. Mission Description and Budget Item Justification**

The Joint Terminal Control Training and Rehearsal System (JTC TRS) project under the Tactical Airborne Control System funds developments necessary to provide Distributed Mission Operations (DMO) capable high-fidelity Joint Terminal Attack Controller (JTAC), and Combat Control Team (CCT) training and rehearsal system. Provides development funding to enable connectivity to DMO networks to allow geographically separated high-fidelity close air support platforms and JTACs/CCT teams to train together. Develops a system that will enable operators to conduct Joint Close Air Support (JCAS) training/mission rehearsal using tailored, dynamic scenarios that are relevant to mission tasking and capable of providing air traffic control training for CCT using tactical application of austere airbase operations. Using a system of systems approach JTC TRS provides incremental development to network in Increment 1 to aircrew full mission trainers and mission training centers, and by Increment 2, to Air Support Operations Centers (ASOCs) for Joint Tactical Air Strike Requests and air-ground coordination of Joint fires. Its primary focus is to provide a persistent total air-ground virtual training environment for networked air ground training and mission rehearsal capability that will develop both JTAC/CCT skills and train those air crews assigned to accomplish complex JCAS missions in close proximity to ground forces. Provides research and development to facilitate interoperability with joint/sister Service air ground simulation using industry standards.

This program is in Budget Activity 7, Operational System Development, because it updates and develops capabilities for current operational systems.

**(U) B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	3.366	1.530	
(U) Current PBR/President's Budget	3.366	1.526	
(U) Total Adjustments	0.000	-0.004	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.004	
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer			
(U) <u>Significant Program Changes:</u>			

Exhibit R-2a, RDT&E Project Justification

DATE  
May 2009

BUDGET ACTIVITY <b>07 Operational System Development</b>					PE NUMBER AND TITLE <b>0207418F TAC AIRBORNE CONTROL SYSTEM</b>			PROJECT NUMBER AND TITLE <b>5234 TACP Support</b>		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5234 TACP Support	3.366	1.526	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) **A. Mission Description and Budget Item Justification**

The Joint Terminal Control Training and Rehearsal System (JTC TRS) project under the Tactical Airborne Control System funds developments necessary to provide Distributed Mission Operations (DMO) capable high-fidelity Joint Terminal Attack Controller (JTAC), and Combat Control Team (CCT) training and rehearsal system. Provides development funding to enable connectivity to DMO networks to allow geographically separated high-fidelity close air support platforms and JTACs/CCT teams to train together. Develops a system that will enable operators to conduct Joint Close Air Support (JCAS) training/mission rehearsal using tailored, dynamic scenarios that are relevant to mission tasking and capable of providing air traffic control training for CCT using tactical application of austere airbase operations. Using a system of systems approach JTC TRS provides incremental development to network in Increment 1 to aircrew full mission trainers and mission training centers, and by Increment 2, to Air Support Operations Centers (ASOCs) for Joint Tactical Air Strike Requests and air-ground coordination of Joint fires. Its primary focus is to provide a persistent total air-ground virtual training environment for networked air ground training and mission rehearsal capability that will develop both JTAC/CCT skills and train those air crews assigned to accomplish complex JCAS missions in close proximity to ground forces. Provides research and development to facilitate interoperability with joint/sister Service air ground simulation using industry standards.

This program is in Budget Activity 7, Operational System Development, because it updates and develops capabilities for current operational systems.

(U) **B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Continue development of high-fidelity simulation system for JTAC/CCT Training	3.366	1.526	
(U) Total Cost	3.366	1.526	0.000

(U) **C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2008</u> <u>Actual</u>	<u>FY 2009</u> <u>Estimate</u>	<u>FY 2010</u> <u>Estimate</u>	<u>FY 2011</u> <u>Estimate</u>	<u>FY 2012</u> <u>Estimate</u>	<u>FY 2013</u> <u>Estimate</u>	<u>FY 2014</u> <u>Estimate</u>	<u>FY 2015</u> <u>Estimate</u>	<u>Cost to</u> <u>Complete</u>	<u>Total Cost</u>
(U) PE 0207418F, TAC Airborne Control System, Other Procurement , AF	0.000	7.333	7.810	27.509	21.545	9.481	3.519	3.557	Continuing	TBD
(U) PE 0207418F, TAC Airborne Control System, O&M , AF	0.300	0.000	1.569	2.909	4.661	4.817	4.839	5.203	Continuing	TBD

(U) **D. Acquisition Strategy**

The acquisition strategy will be based on a Small Business Set Aside to develop a Production Representative Article (PRA) with the required documentation to immediately compete a production contract through a yet to be determined (small business or full and open) approach. The PRA and first production lot will constitute Increment 1 which will allow JTAC/CCT teams to network to aircrew full mission trainers and mission training centers. Future increments will be incorporated as

Exhibit R-2a, RDT&E Project Justification

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207418F TAC AIRBORNE CONTROL SYSTEM

PROJECT NUMBER AND TITLE

5234 TACP Support

funding and technology allow.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>07 Operational System Development</b>				<b>0207418F TAC AIRBORNE CONTROL SYSTEM</b>					<b>5234 TACP Support</b>			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> 677 AESG AFMC		677 AESG AFMC, Wright Patterson AFB, OH	2.887	3.366		0.200	Mar-10			Continuing	TBD	TBD
Subtotal Product Development			2.887	3.366		0.200		0.000		Continuing	TBD	TBD
Remarks:												
(U) <u>Support</u>										Continuing	TBD	TBD
Subtotal Support			0.000	0.000		0.000		0.000		Continuing	TBD	TBD
Remarks:												
(U) <u>Test &amp; Evaluation</u> 605 TES ACC		605 TES/TXT ACC, Eglin AFB FL	0.000	0.000		0.200	Jan-09	0.000		Continuing	TBD	TBD
Subtotal Test & Evaluation			0.000	0.000		0.200		0.000		Continuing	TBD	TBD
Remarks:												
(U) <u>Management</u> Program Office Support		677 AESG AFMC, Wright Patterson AFB, OH	0.479			1.126				Continuing	TBD	TBD
Subtotal Management			0.479	0.000		1.126		0.000		Continuing	TBD	TBD
Remarks:												
(U) Total Cost			3.366	3.366		1.526		0.000		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE  
May 2009

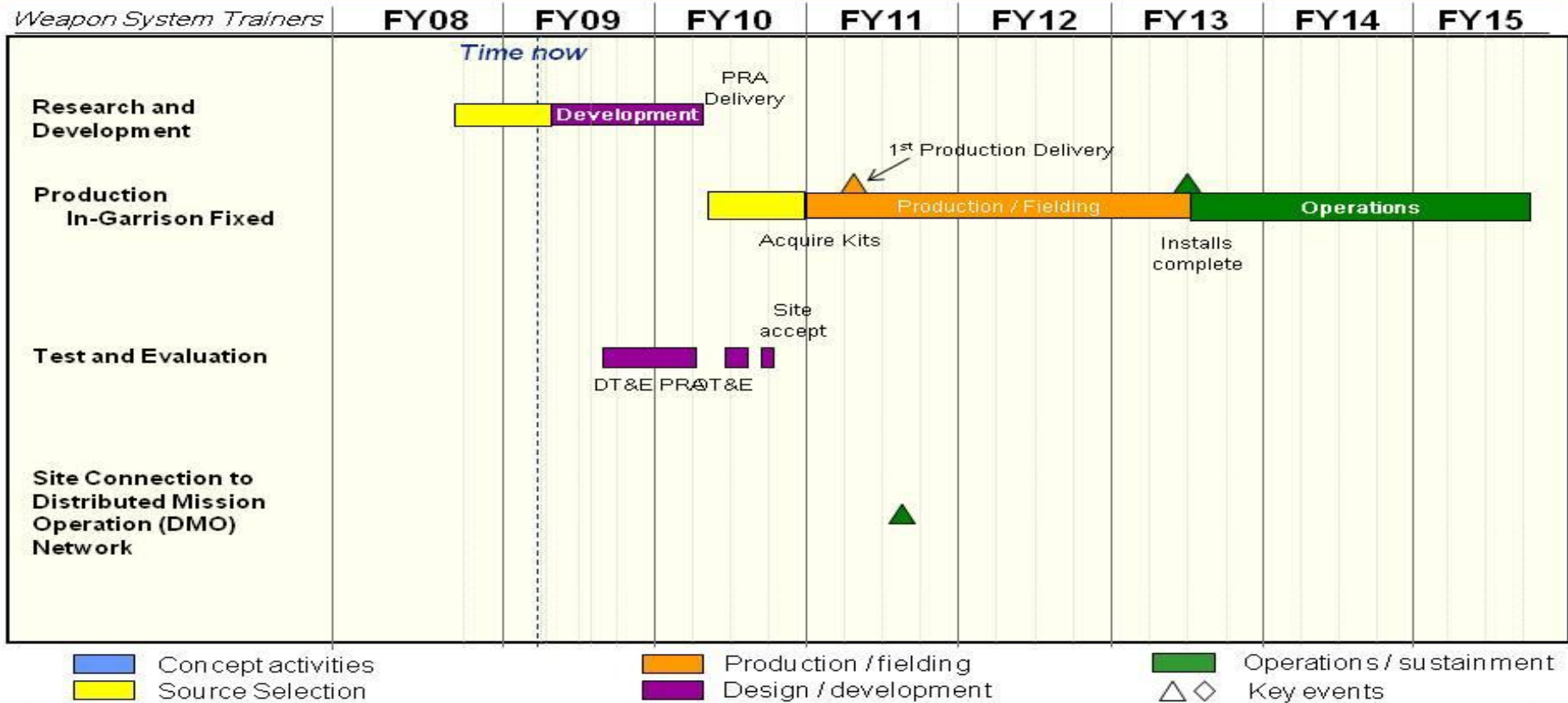
BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0207418F TAC AIRBORNE CONTROL SYSTEM

PROJECT NUMBER AND TITLE  
5234 TACP Support



# Joint Terminal Control Training/Rehearsal System (JTC TRS)



FY09 Staffer Brief

Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207418F TAC AIRBORNE CONTROL SYSTEM

PROJECT NUMBER AND TITLE

5234 TACP Support

(U) Schedule Profile

FY 2008

FY 2009

FY 2010

(U) JTC TRS In-garrison/Fixed Development

1-4Q

(U) JTC In-garrison/Fixed I/OT& E

4Q

(U) JTC In-garrison/Fixed Delivery

1Q



**UNCLASSIFIED**

PE NUMBER: 0207423F  
 PE TITLE: Advanced Communications Systems

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0207423F Advanced Communications Systems</b>
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	30.226	29.587	63.782	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
4934 Tactical Air Control Party (TACP)	12.170	13.166	17.568	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5189 C2ISR JTRS Integration	18.056	16.421	46.214	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

**(U) A. Mission Description and Budget Item Justification**

The TACP-Modernization program is acquiring new equipment to give TACPs the capability to detect targets and compute precise target coordinates for employment of GPS aided weapons, reduce the potential for fratricide, and reduce the potential for collateral damage in civilian-occupied areas. This new equipment reduces the kill chain by reducing the time required to submit air support requests, provide target information to aircraft, and ensure pilots are tracking the correct target. By reducing the time required to execute close air support missions in "troops-in-contact" situations, the TACP-M program helps reduce the number of U.S and coalition casualties due to enemy action. TACPs deploy with Army maneuver units and provide a Command and Control (C2) link for Close Air Support (CAS), airlift and AF surveillance/reconnaissance missions. TACPs are equipped with various targeting and communications equipment needed to interface with ground maneuver forces, aircraft conducting CAS operations, aerospace C2 aircraft/agencies, and Intelligence, Surveillance and Reconnaissance (ISR) platforms/agencies. The TACP-Modernization (TACP-M) program provides TACP and Air Support Operations Centers (ASOCs) personnel with the capability to precisely locate and target enemy ground forces by integrating various Laser Targeting Devices (LTD) and ultra high frequency satellite communications (UHF SATCOM) for beyond-line-of-sight (BLOS) Air Force Air Request Net operations. The purpose of the TACP-M program is to reduce reliance on voice transmission and replace analog equipment with the latest digital, data link and streaming video (e.g. Remote Operations Video Enhanced Receiver (ROVER)) technology. This capability supports joint and multinational interoperability, improves battlefield Situational Awareness (SA), increases targeting accuracy, reduces kill chain decision time, improves data flows/information exchange, and reduces potential fratricide. The TACP-M program supports the OCO and significantly increased the mission effectiveness of the TACPs and ASOCs during Operations Enduring and Iraqi Freedom. The TACP-M program continues to be instrumental in providing ground communications for TACPs during federal emergency relief operations and Homeland Defense initiatives.

TACP-M is divided into two segments: Dismounted and mounted. The dismounted TACP provides a modernized/modular capability via a streamlined acquisition using non-developmental, commercial off-the-shelf (COTS) Manpack Radios (MPR) or Handheld Radios (HHR), Targeting Devices (that include Laser Range Finding capability, Joint Effects Targeting System (JETS), and laser designators), tactical computers for dismounted and Tactical Operations Center use, and ancillary equipment combined with TACP Close Air Support System (CASS) Software. Dismounted Operations include overseas contingency operations centered around irregular (guerilla) warfare. These operations require smaller, lighter, and more capable communications systems and targeting devices to enable TACPs to operate in high altitude, rough terrain, and accurately determine target coordinates, request air support, and control air strikes in support of U.S. and coalition troops conducting dismounted patrols far from other fire support assets.

Mounted operations in overseas contingency operations also require new digital communications/network enabled capabilities for armored HMMWVs and Mine Resistant Ambush Protected (MRAP) and other support vehicle platforms used in times of conflict. Vehicle Communications System is a vital modular solution that

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

May 2009

BUDGET ACTIVITY

**07 Operational System Development**

PE NUMBER AND TITLE

**0207423F Advanced Communications Systems**

provides network enabled communications to the aircraft and C2 nodes throughout the area of operations.

Joint Effects Targeting System (JETS) is a 2-phase program intended to improve dismounted laser targeting devices (both range finders and designators) and targeting/communications mission software. The first phase is to develop handheld target location designation systems (TLDS) for use by all Services' dismounted operators. The second phase is to develop interoperable mission software systems. FY10 funding will be utilized for phase one implementation only.

Funding cuts toward this program will directly impact the warfighter in areas such as increased potential for fratricide, increased potential for collateral damage, increased potential for U.S. and coalition casualties in a "troops in contact" situation, the inability to conduct net-centric operations, inability to receive and display friendly force positions, inability to accurately locate targets for employment of GPS-aided munitions, inability to maintain situation awareness during operations, and the inability to communicate to airborne and C2 nodes throughout the area of operations.

AF JTRS program office will develop and support strategies to develop communication architectures, connectivity, bandwidth compatibility, radio procurement, logistics, and engineering studies to ensure waveform integration and interoperability among platforms and systems, in support of all AF CONOPS to ensure network voice and data exchange.

Activities also include studies and analysis to support both current program planning and execution and future program planning

This program is in budget activity 7, Operational System Development, since it examines appropriate emerging technologies for the continuing incremental development of Commercial-Off-The-Shelf (COTS) equipment, provides software development, and determines and resolves integration issues pertaining to COTS.

**(U) B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	33.372	29.782	57.877
(U) Current PBR/President's Budget	30.226	29.587	63.782
(U) Total Adjustments	-3.146	-0.195	
(U) Congressional Program Reductions		-0.114	
Congressional Rescissions		-0.081	
Congressional Increases			
Reprogrammings	-2.218		
SBIR/STTR Transfer	-0.928		

**(U) Significant Program Changes:**

FY09 and FY10 100% increase to support C2ISR platform installation kit development and radio integration to meet FY11 projected platform installation schedule.

FY10 increase to support AF share of Joint Effects Targeting System (JETS) for laser designators development

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

May 2009

BUDGET ACTIVITY <b>07 Operational System Development</b>						PE NUMBER AND TITLE <b>0207423F Advanced Communications Systems</b>		PROJECT NUMBER AND TITLE <b>4934 Tactical Air Control Party (TACP)</b>		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
4934 Tactical Air Control Party (TACP)	12.170	13.166	17.568	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) **A. Mission Description and Budget Item Justification**

The TACP-Modernization program is acquiring new equipment to give TACPs the capability to detect targets and compute precise target coordinates for employment of GPS aided weapons, reduce the potential for fratricide, and reduce the potential for collateral damage in civilian-occupied areas. This new equipment reduces the kill chain by reducing the time required to submit air support requests, provide target information to aircraft, and ensure pilots are tracking the correct target. By reducing the time required to execute close air support missions in "troops-in-contact" situations, the TACP-M program helps reduce the number of U.S and coalition casualties due to enemy action. TACPs deploy with Army maneuver units and provide a Command and Control (C2) link for Close Air Support (CAS), airlift and AF surveillance/reconnaissance missions. TACPs are equipped with various targeting and communications equipment needed to interface with ground maneuver forces, aircraft conducting CAS operations, aerospace C2 aircraft/agencies, and Intelligence, Surveillance and Reconnaissance (ISR) platforms/agencies. The TACP-Modernization (TACP-M) program provides TACP and Air Support Operations Centers (ASOCs) personnel with the capability to precisely locate and target enemy ground forces by integrating various Laser Targeting Devices (LTD) and ultra high frequency satellite communications (UHF SATCOM) for beyond-line-of-sight (BLOS) Air Force Air Request Net operations. The purpose of the TACP-M program is to reduce reliance on voice transmission and replace analog equipment with the latest digital, data link and streaming video (e.g. Remote Operations Video Enhanced Receiver (ROVER)) technology. This capability supports joint and multinational interoperability, improves battlefield Situational Awareness (SA), increases targeting accuracy, reduces kill chain decision time, improves data flows/information exchange, and reduces potential fratricide. The TACP-M program supports the OCO and significantly increased the mission effectiveness of the TACPs and ASOCs during Operations Enduring and Iraqi Freedom. The TACP-M program continues to be instrumental in providing ground communications during federal emergency relief operations and Homeland Defense initiatives.

TACP-M is divided into two segments: Dismounted and mounted. The dismounted TACP provides a modernized/modular capability via a streamlined acquisition using non-developmental, commercial off-the-shelf (COTS) Manpack Radios (MPR) or Handheld Radios (HHR), Targeting Devices (that include Range Finding capability, Joint Effects Targeting System (JETS), and laser designators), tactical computers for dismounted and Tactical Operations Center use, and ancillary equipment combined with TACP Close Air Support System (CASS) Software. Dismounted Operations include overseas contingency operations centered around irregular (guerilla) warfare. These operations require smaller, lighter, and more capable communications systems and targeting devices to enable TACPs to operate in high altitude, rough terrain, and accurately determine target coordinates, request air support, and control air strikes in support of U.S. and coalition troops conducting dismounted patrols far from other fire support assets.

Mounted operations in overseas contingency operations also require new digital communications/network enabled capabilities for armored HMMWVs and Mine Resistant Ambush Protected (MRAP) and other support vehicle platforms used in times of conflict. Vehicle Communications System is a vital modular solution that provides network enabled communications to the aircraft and C2 nodes throughout the area of operations.

**Exhibit R-2a, RDT&E Project Justification**

DATE

**May 2009**

BUDGET ACTIVITY

**07 Operational System Development**

PE NUMBER AND TITLE

**0207423F Advanced Communications Systems**

PROJECT NUMBER AND TITLE

**4934 Tactical Air Control Party (TACP)**

Joint Effects Targeting System (JETS) is a 2-phase program intended to improve dismounted laser targeting devices (both range finders and designators) and targeting/communications mission software. The first phase is to develop handheld target location designation systems (TLDS) for use by all Services' dismounted operators. The second phase is to develop interoperable mission software systems. FY10 funding will be utilized for phase one implementation only.

Funding cuts toward this program will directly impact the warfighter in areas such as increased potential for fratricide, increased potential for collateral damage, increased potential for U.S. and coalition casualties in a "troops in contact" situation, the inability to conduct net-centric operations, inability to receive and display friendly force positions, inability to accurately locate targets for employment of GPS-aided munitions, inability to maintain situation awareness during operations, and the inability to communicate to airborne and C2 nodes throughout the area of operations.

This program is in budget activity 7, Operational System Development, since it examines appropriate emerging technologies for the continuing incremental development of COTS equipment, provides software development, and determines and resolves integration issues pertaining to COTS.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Continue TACP Vehicular Communication System (VCS) integration of hardware (GFE & COTS) development	5.700	5.800	1.926
(U) Software development and systems integration	3.805	3.895	4.458
(U) Joint Effects Targeting System (JETS)			7.000
(U) Operational and interoperability test planning	1.370	2.151	2.818
(U) Contractor support and systems engineering	1.295	1.320	1.366
(U) Total Cost	12.170	13.166	17.568

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Advanced Communications System Other Procurement, AF PE 0207423F	99.509	68.972	99.004						Continuing	TBD

**(U) D. Acquisition Strategy**

The TACP-M is executing an incremental development for the TACP CASS software. TACP CASS software systems engineering, design, integration, and fielding support is being provided under a cost plus fixed fee contract. TACP-M awarded a fixed price contract for the Vehicular Communication System (VCS) in FY09 under full and open competition. This contract will deliver an integrated system (mounted/dismounted) with an emphasis on Reduced Total Ownership Cost (RTOC) over the life cycle of the program.

UNCLASSIFIED

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>07 Operational System Development</b>				<b>0207423F Advanced Communications Systems</b>					<b>4934 Tactical Air Control Party (TACP)</b>			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2008 Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date	Cost to Complete	Total Cost	Target Value of Contract
(U) <u>Product Development</u> ESC Sys Int Software Dev't	CPFF	Rockwell Collins, Poway, CA	4.392	3.540	Dec-07	3.895	Mar-09	4.458	Jan-10	Continuing	TBD	TBD
VCS (MRC-144 Upgrade)	FFP	BAE Systems, Inc., Rockville, MD	5.700	5.700	Dec-08	5.800	Dec-08	1.926	Jan-10	Continuing	TBD	
JETS	TBD	TBD	0.000	0.000		0.000		7.000			7.000	
Subtotal Product Development			10.092	9.240		9.695		13.384		Continuing	TBD	TBD
Remarks:	Vehicular Communication System (VCS) GFE & COTS hardware integration											
(U) <u>Support</u> System Engineering/Software Development	C/FFP	Various	0.000	0.265	Apr-08	0.000		0.000		Continuing	TBD	TBD
Subtotal Support			0.000	0.265		0.000		0.000		Continuing	TBD	TBD
Remarks:												
(U) <u>Test &amp; Evaluation</u> Test Agency Support	Various	Various	1.526	1.370	Dec-07	2.151	Dec-08	2.818	Dec-09	Continuing	TBD	TBD
Subtotal Test & Evaluation			1.526	1.370		2.151		2.818		Continuing	TBD	TBD
Remarks:												
(U) <u>Management</u> Support	Various	Various	1.519	1.295	Feb-08	1.320	Jan-09	1.366	Jan-10	Continuing	TBD	TBD
Subtotal Management			1.519	1.295		1.320		1.366		Continuing	TBD	TBD
Remarks:												
(U) Total Cost			13.137	12.170		13.166		17.568		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

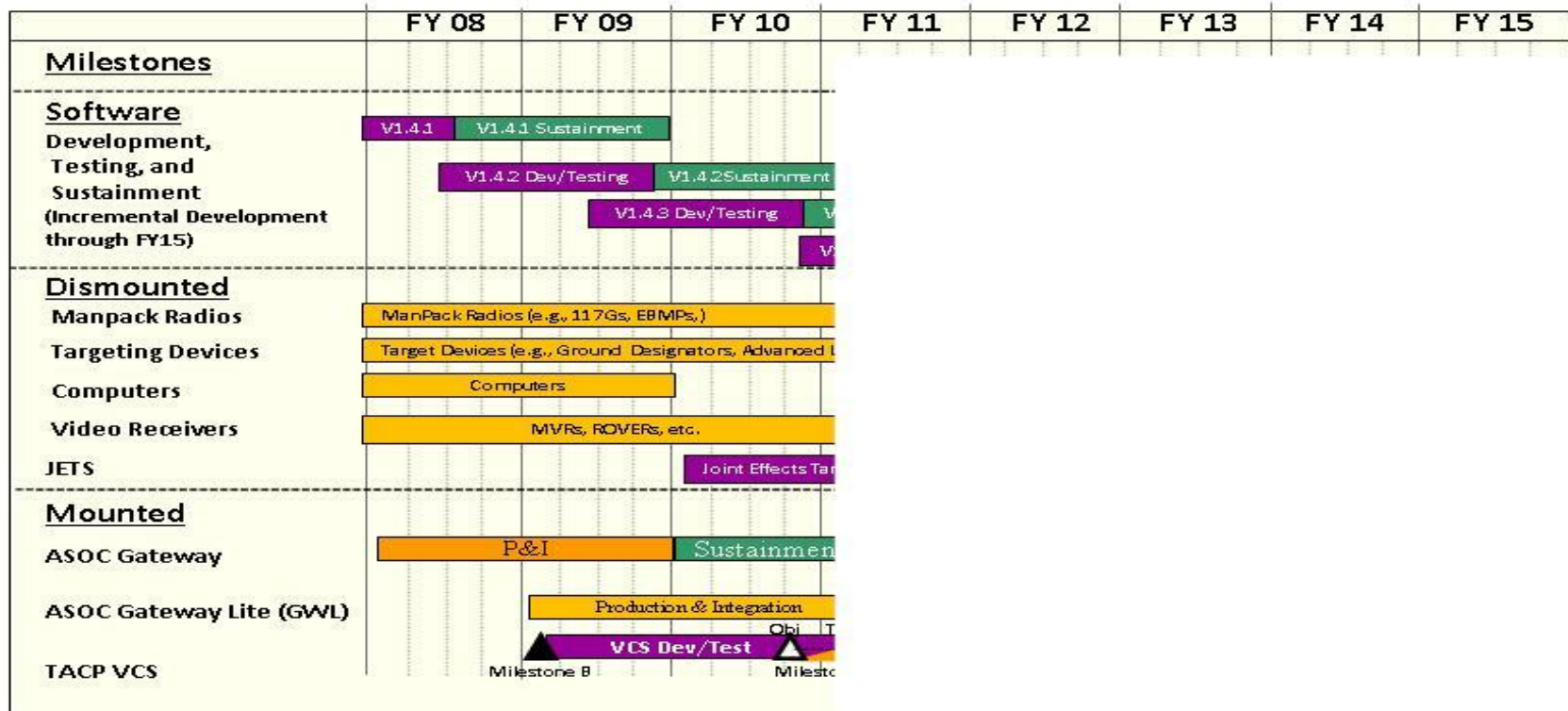
BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0207423F Advanced Communications Systems

PROJECT NUMBER AND TITLE  
4934 Tactical Air Control Party (TACP)

# TACP-M Program Schedule

As of 20 Apr 09



Completed Milestone

Production & Integration

Development & Testing

Sustainment

Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0207423F Advanced Communications Systems</b>	PROJECT NUMBER AND TITLE <b>4934 Tactical Air Control Party (TACP)</b>
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(U) <u>Schedule Profile</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Software Development - TACP-CASS v1.4.1	1-2Q		
(U) Software Development - TACP-CASS v1.4.2	2-4Q	1-4Q	
(U) Software Development - TACP-CASS v1.4.3		2-4Q	1-3Q
(U) Software Development - TACP-CASS v1.4.4			4Q
(U) Laser Targeting Device - Dismounted (JETS)			1-4Q
(U) VCS Milestone (MS) B		1Q	
(U) VCS Development		1-4Q	1-4Q
(U) VCS Milestone (MS) C (Obj)			4Q

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>					PE NUMBER AND TITLE <b>0207423F Advanced Communications Systems</b>			PROJECT NUMBER AND TITLE <b>5189 C2ISR JTRS Integration</b>		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5189 C2ISR JTRS Integration	18.056	16.421	46.214	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

Joint Tactical Radio System (JTRS), as part of the broader and crucial Airborne Network used in a combat environment, will be a family of software programmable radios for reliable multi-channel voice, data, imagery, and video communications, as well as necessary gateways, routers or other associated components to achieve an IP-based networking capability. JTRS radios will be modular, scalable, and network ready. Legacy and other available upgraded communication products will be utilized until JTRS products, developed by the JTRS JPEO or other qualified vendors, are available. The AF JTRS program office will execute funding that provides capabilities on various platforms.

AF JTRS program office will develop and support strategies to develop communication architectures, connectivity, bandwidth compatibility, radio procurement, logistics, and engineering studies to ensure waveform integration and interoperability among platforms and systems, in support of all AF CONOPS to ensure unprecedented network voice and data exchange.

This program is in Budget Activity 7, Operational System Development, since it supports integration of JTRS products and legacy radios into operational systems.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) System Engineering, Planning, and Integration	15.675	15.253	42.842
(U) Platform Planning and Integration	1.376	0.330	0.940
(U) Develop Operational and Interoperability	1.005	0.838	2.432
(U) Total Cost	18.056	16.421	46.214

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Advanced Communication System-Aircraft Procurement, AF PE 0207423F	21.144	66.670	12.796						Continuing	TBD
(U) Advanced Communication System-Other Procurement, AF PE 0207423F	44.276	87.291	59.771						Continuing	TBD

**(U) D. Acquisition Strategy**

Air Force JTRS integration will perform system engineering integration, to deliver an interoperable, fully synchronized, deployable JTRS system under various



**Exhibit R-2a, RDT&E Project Justification**

DATE

**May 2009**

BUDGET ACTIVITY

**07 Operational System Development**

PE NUMBER AND TITLE

**0207423F Advanced Communications  
Systems**

PROJECT NUMBER AND TITLE

**5189 C2ISR JTRS Integration**

contract awards. This effort will assist various AF platform efforts to acquire and integrate the next generation communications system, to include all key documentation (CONOPS, TTPs, ICDs, TRDs, etc.)

UNCLASSIFIED

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>				<b>PE NUMBER AND TITLE</b> <b>0207423F Advanced Communications Systems</b>				<b>PROJECT NUMBER AND TITLE</b> <b>5189 C2ISR JTRS Integration</b>				
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(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
Systems Engineering, Planning, and Integration	C/FFP	Northrop Grumman, Melbourne, FL	1.600	1.600	Feb-08	4.820	Feb-09	21.830	Feb-10	Continuing	TBD	TBD
Systems Engineering, Planning, and Integration	MIPR	Northrop Grumman, Wright-Patterson AFB, OH	2.800	2.800	Jul-08					Continuing	TBD	TBD
Systems Engineering, Planning, and Integration	C/FFP	General Atomics, San Diego, CA	3.100	3.300	Jul-08			4.500	Feb-10	Continuing	TBD	TBD
Systems Engineering, Planning, and Integration	C/FFP	L3COM IS, Greenville, TX	1.500	3.557	Jul-08	3.000	Feb-09			Continuing	TBD	TBD
Systems Engineering, Planning, and Integration	Various	Various	3.405	4.418	Jul-08	7.433	Feb-09	16.512	Feb-10	Continuing	TBD	TBD
Subtotal Product Development			12.405	15.675		15.253		42.842		Continuing	TBD	TBD
Remarks:												
(U) <u>Planning and Integration</u>												
	MIPR	ASC/AA Various	7.530	1.376	Feb-08	0.330	Feb-09	0.940	Feb-10		10.176	
Subtotal Planning and Integration			7.530	1.376		0.330		0.940		0.000	10.176	0.000
Remarks:												
(U) <u>Development operational amd interoperability test</u>												
	MIPR	Test Agency Support		1.005	Jul-08	0.838	Feb-09	2.432	Feb-10		4.275	
Subtotal Development operational amd interoperability test			0.000	1.005		0.838		2.432		0.000	4.275	0.000
Remarks:												
(U) Total Cost			19.935	18.056		16.421		46.214		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY  
07 Operational System Development

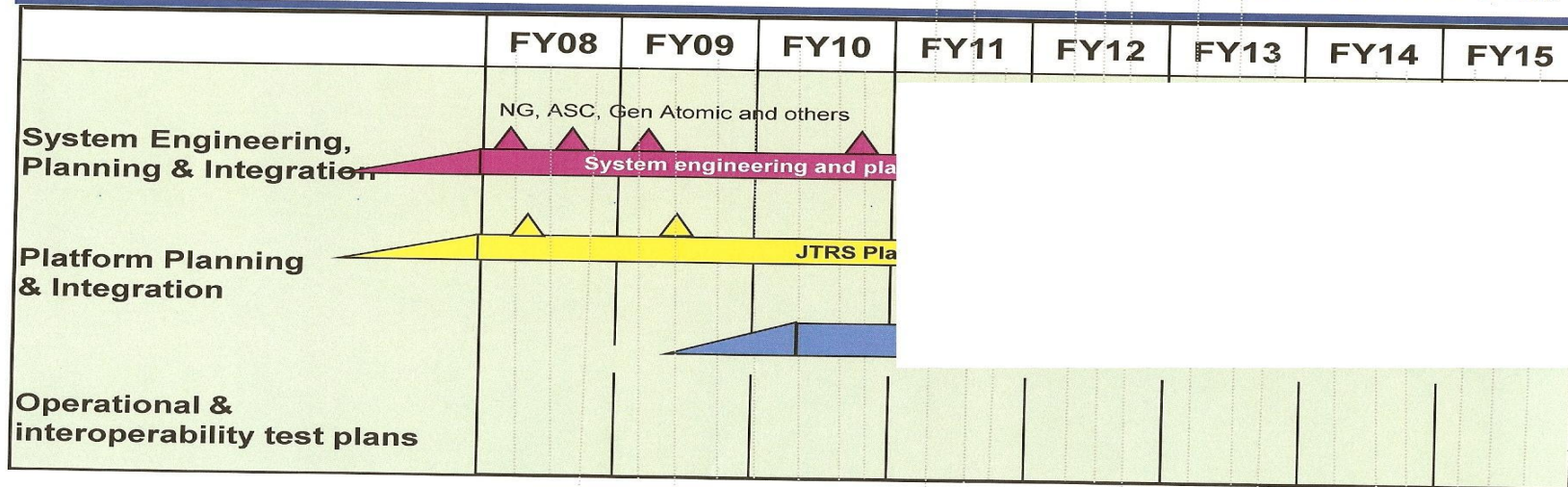
PE NUMBER AND TITLE  
0207423F Advanced Communications Systems

PROJECT NUMBER AND TITLE  
5189 C2ISR JTRS Integration



# Air Force JTRS Procurement and Integration Schedule

**U.S. AIR FORCE** Note: includes legacy and other radio procurement until JTRS are avail



JTRS Procurement  
 Legacy Procurement

System Eng, Int & Plns  
 Test & Interops Plans

Platform Plan & Int  
 Sustainment

Key events

As of 5 Jan 09

Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207423F Advanced Communications Systems

PROJECT NUMBER AND TITLE

5189 C2ISR JTRS Integration

(U) Schedule Profile

FY 2008

FY 2009

FY 2010

(U) Systems Engineering

1-4Q

1-4Q

1-4Q

(U) Planning and Integration

1-4Q

1-4Q

1-4Q

(U) Operational & Interoperability Test Planning

2-4Q

1-4Q

**UNCLASSIFIED**

PE NUMBER: 0207431F  
 PE TITLE: Combat Air Intelligence System

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0207431F Combat Air Intelligence System</b>
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.000	0.000	1.475	0.000	0.000	0.000	0.000	0.000	0.000	0.000
5307 TARGETING ENTERPRISE RESEARCH	0.000	0.000	0.983	0.000	0.000	0.000	0.000	0.000	0.000	0.000
5309 GEO Info & Serv Software	0.000	0.000	0.492	0.000	0.000	0.000	0.000	0.000	0.000	0.000

**(U) A. Mission Description and Budget Item Justification**

The mission of Combat Air Intelligence Systems (CAIS) is to process, analyze, and disseminate intelligence for air component and unit operations worldwide by providing key intelligence infrastructure and tactical production capabilities for the Air Force with true backbone type of intelligence support for air operations.

CAIS is focused on providing the "tactical" combat-oriented intelligence infrastructure for Air Force major commands: providing funding to ACC, PACAF, USAFE, AMC, AFMC, AFSOC, and AETC to primarily fund Air Intelligence Squadrons and the 480th Intelligence Group.

This program is in Budget Activity 7, Operational System Development, because it addresses the tactical combat-oriented intelligence infrastructure for the Air Force major commands.

**(U) B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget			1.500
(U) Current PBR/President's Budget	0.000	0.000	1.475
(U) Total Adjustments	0.000	0.000	
(U) Congressional Program Reductions			
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer			
(U) <u>Significant Program Changes:</u>			

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>				PE NUMBER AND TITLE <b>0207431F Combat Air Intelligence System</b>				PROJECT NUMBER AND TITLE <b>5307 TARGETING ENTERPRISE RESEARCH</b>		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5307 TARGETING ENTERPRISE RESEARCH	0.000	0.000	0.983	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

Targeting Training emphasis ensures certified targeteers meet growing precision-guided munitions inventory

GWOT demands create training and continuity challenges

IFTUs and Training Transformation helping to alleviate training burden

Increased demand on classified systems and networks to support operations and mission requirements

JWICS

GPL

**(U) A. Mission Description and Budget Item Justification**

Provides support to JWICS users utilizing Tactical Intelligence Applications, Target Planning & Execution, Geospatial Intelligence, Intelligence Training and dissemination architecture targeting capabilities. System information is in direct support to National, Combatant Command, and Air Force Intelligence Missions.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Conduct Targeting Enterprise Research			0.983
(U)			
(U)			
(U) Total Cost	0.000	0.000	0.983

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Not applicable										

**(U) D. Acquisition Strategy**

All contracts are awarded based on full and open competition.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE				
<b>07 Operational System Development</b>				<b>0207431F Combat Air Intelligence System</b>				<b>5307 TARGETING ENTERPRISE RESEARCH</b>				
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> Targeting Enterprise Research	TBD	TBD	0.000	0.000		0.000		0.983	Jan-10	Continuing	TBD	TBD
Subtotal Product Development								0.983		Continuing	TBD	TBD
Remarks:												
(U) <u>Support</u> Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u> Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Management</u> Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			0.000	0.000		0.000		0.983		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

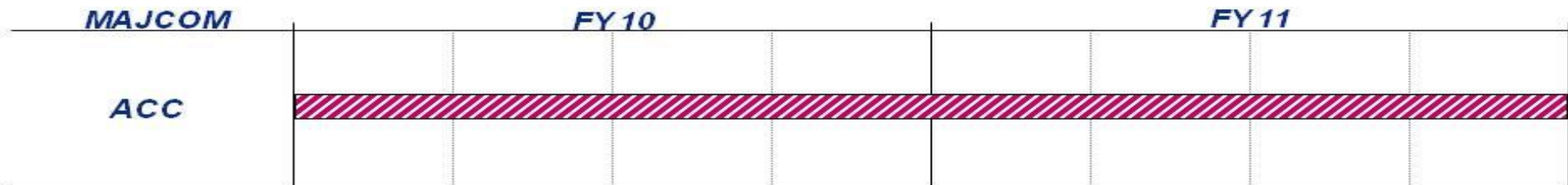
BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0207431F Combat Air Intelligence System

PROJECT NUMBER AND TITLE  
5307 TARGETING ENTERPRISE RESEARCH

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# Geospatial Product Library (GPL) Schedule



R&D SOFTWARE/HARDWARE (674826)

**\$1,500,000**

\*\*\*totals not adjusted for inflation

*Geospatial Product Library (GPL) RDT&ETasks:*

*Develop an Air Force open source (i.e. free software) web services capability to be hosted on the Enhanced GPL. Prototype to initially provide various Open Geospatial Consortium (OGC) services in a test-bed environment.*

*Continue development of the Enhanced GPL. The goal is to transform the GPL into a modular geospatial data server that is scalable in terms of capability (processing & storage) and application software (mission support).*

*Continue research in the latest automation techniques with a goal of improving or making more efficient the automated data flow to the fielded GPL systems.*

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Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207431F Combat Air Intelligence System

PROJECT NUMBER AND TITLE

5307 TARGETING ENTERPRISE RESEARCH

(U) Schedule Profile

FY 2008

FY 2009

FY 2010

(U) Targeting Enterprise Research

1-4Q

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>					PE NUMBER AND TITLE <b>0207431F Combat Air Intelligence System</b>			PROJECT NUMBER AND TITLE <b>5309 GEO Info &amp; Serv Software</b>		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5309 GEO Info & Serv Software	0.000	0.000	0.492	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

Air Force GEOINT Support program funds the Air Force Geospatial Product Library (GPL) which is currently fielded to all Combatant Command Air Components and subordinate units supporting global air operations. The GPL provides digital GEOINT data to support mission planning, targeting & intelligence in support of mission objectives.

Global Positioning Library (GPL) installed at approximately 180 sites with an estimated 250 sites required by FY 2010 to continue effort.

**(U) A. Mission Description and Budget Item Justification**

(U) Provides support to Geospatial resources utilized in Geospatial Intelligence Databasing Applications, Technology Exploration and Technology Refresh initiatives, management and dissemination architecture, GI&S modernization and enablers for targeting capabilities. Provides support to the MAJCOMS to ensure requisite and available target intelligence and Geospatial Intelligence tools and information directly available to combatants.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Provides GEO Info & Serv Software			0.500
(U)			
(U)			
(U) Total Cost	0.000	0.000	0.500

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) None.										

**(U) D. Acquisition Strategy**

All major contracts within this project will be awarded after full and open competition.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE				
<b>07 Operational System Development</b>				<b>0207431F Combat Air Intelligence System</b>				<b>5309 GEO Info &amp; Serv Software</b>				
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
Software Development	TBD	TBD						0.500	Jan-10	Continuing	TBD	TBD
Subtotal Product Development			0.000	0.000		0.000		0.500		Continuing	TBD	TBD
Remarks:												
(U) <u>Support</u>												
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			0.000	0.000		0.000		0.500		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

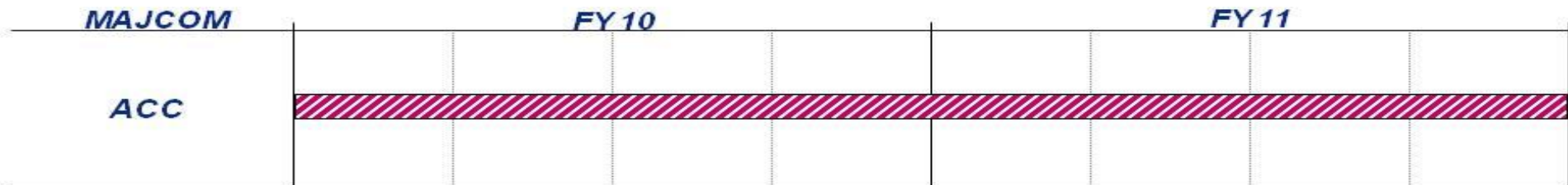
BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0207431F Combat Air Intelligence System

PROJECT NUMBER AND TITLE  
5309 GEO Info & Serv Software

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# Geospatial Product Library (GPL) Schedule



 R&D SOFTWARE/HARDWARE (674826)

**\$1,500,000**

\*\*\*totals not adjusted for inflation

*Geospatial Product Library (GPL) RDT&E Tasks:*

*Develop an Air Force open source (i.e. free software) web services capability to be hosted on the Enhanced GPL. Prototype to initially provide various Open Geospatial Consortium (OGC) services in a test-bed environment.*

*Continue development of the Enhanced GPL. The goal is to transform the GPL into a modular geospatial data server that is scalable in terms of capability (processing & storage) and application software (mission support).*

*Continue research in the latest automation techniques with a goal of improving or making more efficient the automated data flow to the fielded GPL systems.*

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Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207431F Combat Air Intelligence System

PROJECT NUMBER AND TITLE

5309 GEO Info & Serv Software

(U) Schedule Profile

FY 2008

FY 2009

FY 2010

(U) Software Development

1-4Q

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PE NUMBER: 0207438F  
 PE TITLE: Theater Battle Management (TBM) C4I

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>May 2009</b>
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BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0207438F Theater Battle Management (TBM) C4I</b>
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	12.079	19.384	19.067	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
4802 Deliberate and Crisis Action Planning and Execution Segment (DCAPES)	12.079	19.384	19.067	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

**(U) A. Mission Description and Budget Item Justification**

The TBM C4I PE includes Deliberate and Crisis Action Planning and Execution Segments (DCAPES), which is being developed as the next-generation AF interface to the Joint Operational Planning and Execution System (JOPES). DCAPES is the Air Force's single system to present, plan, source, mobilize, deploy, account for, sustain, redeploy, and reconstitute forces for contingency and crisis operations. This system provides a real time, two way interchange of personnel, manpower, logistics, and operational data between the Air Force and the warfighting Combatant Commanders. It matches people, cargo, and airframes/weapon systems to the Combatant Commander's warfighting requirements. Acquisition of this system supports the Air Force's expeditionary force concept.

Development activities may also include Logistics Feasibility Analysis Capability (LOGFAC), Logistics Module/Manpower and Personnel Module-Base (LOGMOD/MANPER B), War and Mobilization Planning (WMP), Enhanced Contingency Rotational AEF Scheduling Tool (ECAST), Web Enablement, and JOPES Modernization Migration. Activities also include studies and analysis to support both current program planning and execution and future program planning. This effort is an evolutionary follow-on to the Contingency Operations Mobility Planning and Execution System (COMPES). DCAPES replaced the operational tasking and priorities functionality of COMPES with modern relational databases, integrated-distributed database, and common and shared data consistent with the Joint vision for integrated Command and Control. DCAPES is intended to provide a command and control capability by exchanging data with a range of planning support systems to provide a more effective force projection capability for a wider range of operational scenarios and will fully support the force provider function of the AF Forces (AFFOR) commander. DCAPES along with numerous other war planning support legacy systems are transitioning into a net-centric Service Oriented Architecture (SOA) environment via a War Planning and Execution System (WPES) management construct.

Prior to FY08, the TBMC4I PE included the Theater Battle Management Core Systems (TBMCS) program and the Joint Targeting Toolbox (JTT) project.

DCAPES Increment 2A is post Milestone B and Increment 2B is pre-milestone B. DCAPES is in Budget Activity 7, Operational Systems Development.

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207438F Theater Battle Management (TBM) C4I

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	9.898	19.437	19.465
(U) Current PBR/President's Budget	12.079	19.384	19.067
(U) Total Adjustments	2.181	-0.053	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.053	
Congressional Increases			
Reprogrammings	2.459		
SBIR/STTR Transfer	-0.278		
(U) <b><u>Significant Program Changes:</u></b>			
- Starting in FY08, TBMCS (Project 674790) funding is transferred to PE 0207410F (AOC WS), projects 675218 (Applications Development) and 675220 (Unit Level).			
- Increase in FY09 and FY10 reflects funding added to BPAC 674802 for DCAPES loose-coupling development activities to keep the crisis planning and deployment system operational to support current and future Combatant Commander requirements.			



<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0207438F Theater Battle Management (TBM) C4I</b>	<b>PROJECT NUMBER AND TITLE</b> <b>4802 Deliberate and Crisis Action Planning and Execution Segment (DCAPES)</b>
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
4802 Deliberate and Crisis Action Planning and Execution Segment (DCAPES)	12.079	19.384	19.067	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) **A. Mission Description and Budget Item Justification**

The TBM C4I PE includes Deliberate and Crisis Action Planning and Execution Segments (DCAPES), which is being developed as the next-generation AF interface to the Joint Operational Planning and Execution System (JOPES). DCAPES is the Air Force's single system to present, plan, source, mobilize, deploy, account for, sustain, redeploy, and reconstitute forces for contingency and crisis operations. This system provides a real time, two way interchange of personnel, manpower, logistics, and operational data between the Air Force and the warfighting Combatant Commanders. It matches people, cargo, and airframes/weapon systems to the Combatant Commander's warfighting requirements. Acquisition of this system supports the Air Force's expeditionary force concept.

Development activities may also include Logistics Feasibility Analysis Capability (LOGFAC), Logistics Module/Manpower and Personnel Module-Base (LOGMOD/MANPER B), War and Mobilization Planning (WMP), Enhanced Contingency Rotational AEF Scheduling Tool (ECAST), Web Enablement, and JOPES Modernization Migration. Activities also include studies and analysis to support both current program planning and execution and future program planning. This effort is an evolutionary follow-on to the Contingency Operations Mobility Planning and Execution System (COMPES). DCAPES replaced the operational tasking and priorities functionality of COMPES with modern relational databases, integrated-distributed database, and common and shared data consistent with the Joint vision for integrated Command and Control. DCAPES is intended to provide a command and control capability by exchanging data with a range of planning support systems to provide a more effective force projection capability for a wider range of operational scenarios and will fully support the force provider function of the AF Forces (AFFOR) commander. DCAPES along with numerous other war planning support legacy systems are transitioning into a net-centric Service Oriented Architecture (SOA) environment via a War Planning and Execution System (WPES) management construct.

Prior to FY08, the TBMC4I PE included the Theater Battle Management Core Systems (TBMCS) program and the Joint Targeting Toolbox (JTT) project.

DCAPES Increment 2A is post Milestone B and Increment 2B is pre-milestone B. DCAPES is in Budget Activity 7, Operational Systems Development.

<b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Accomplishments/Planned Programs			
(U) Continue DCAPES Increment 2 contractor development, requirements definition, prototyping, coding, and testing, and service oriented architecture development.	11.085	17.655	17.229
(U) Support	0.377	0.461	0.461
(U) Program Management	0.472	0.449	0.443

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0207438F Theater Battle Management (TBM) C4I</b>	<b>PROJECT NUMBER AND TITLE</b> <b>4802 Deliberate and Crisis Action Planning and Execution Segment (DCAPES)</b>
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<b>(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Test & Evaluation - Continue Government deployment operational testing and interoperability support	0.145	0.819	0.934
(U) Total Cost	12.079	19.384	19.067

<b>(U) <u>C. Other Program Funding Summary (\$ in Millions)</u></b>		<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
		<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Operations and Maintenance		4.338	4.704	4.128	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

**(U) D. Acquisition Strategy**  
 The program uses an evolutionary acquisition strategy with incremental development with multiple software releases to accommodate refinement and prioritization of user requirements and improve adaptability with commercial technology.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0207438F Theater Battle Management (TBM) C4I</b>	<b>PROJECT NUMBER AND TITLE</b> <b>4802 Deliberate and Crisis Action Planning and Execution Segment (DCAPES)</b>
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<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
<u>(U) Product Development</u> DCAPES Increment 2a	Various	CSC, Falls Church, VA	8.700	10.726	Nov-07	17.270	Oct-08	16.844	Nov-09	Continuing	TBD	TBD
DCAPES Increment 2b FFRDC	TBD ID/IQ-Labor Hour	TBD Mitre, Bedford, MA	0.359	0.359	Dec-07	0.385	Dec-08	0.385	Dec-09	Continuing	TBD	TBD
Subtotal Product Development Remarks:			9.059	11.085		17.655		17.229		Continuing	TBD	TBD
<u>(U) Support</u>											0.000	
Contract Logistic Functional Support	ID/IQ-Labor Hour	OASIS Systems, Inc, Lexington MA	0.158	0.177	Feb-08	0.116	Feb-09	0.116	Feb-10	Continuing	TBD	TBD
Contract Cost Analysis Support	ID/IQ-Labor Hour	Tecolote Research, Inc. Goleta, CA	0.209	0.200	Apr-08	0.205	Apr-09	0.205	Apr-10	Continuing	TBD	TBD
Contract Engineering Support	ID/IQ-Labor Hour	Jacobs Technology, Inc, Lincoln, MA				0.140	Jan-09	0.140	Jan-10	Continuing	TBD	TBD
Subtotal Support Remarks:			0.367	0.377		0.461		0.461		Continuing	TBD	TBD
<u>(U) Test &amp; Evaluation</u>												
46 Test Sqdn	MIPR/Other	Eglin AFB, FL	0.045	0.000		0.327	Dec-08	0.327	Dec-09	Continuing	TBD	TBD
605 Test Sqdn	MIPR/Other	Hurlburt Field, FL	0.018	0.030	Jun-08	0.492	Dec-08	0.492	Dec-09	Continuing	TBD	TBD
DISA JITC	MIPR	Ft Hauchuca, AZ		0.115	May-08	0.000	Dec-08	0.115	Dec-09	Continuing	TBD	TBD
Subtotal Test & Evaluation Remarks:			0.063	0.145		0.819		0.934		Continuing	TBD	TBD
<u>(U) Management</u> Program Management Office (PMO) Support	Various	Maxwell-Gunter AFB/ Montgomery, AL	0.052	0.255	Oct-07	0.166	Oct-08	0.160	Nov-09	Continuing	TBD	TBD

R-1 Line Item No. 152

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Project 4802

Exhibit R-3 (PE 0207438F)

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY			PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE				
<b>07 Operational System Development</b>			<b>0207438F Theater Battle Management (TBM) C4I</b>					<b>4802 Deliberate and Crisis Action Planning and Execution Segment (DCAPES)</b>				
Contract PMO Support	ID/IQ-Labor Hour	OASIS Systems, Inc, Lexington MA	0.147	0.217	Apr-08	0.283	Feb-09	0.283	Feb-10	Continuing	TBD	
Subtotal Management			0.199	0.472		0.449		0.443		Continuing	TBD	TBD
Remarks:												
(U) Total Cost			9.688	12.079		19.384		19.067		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

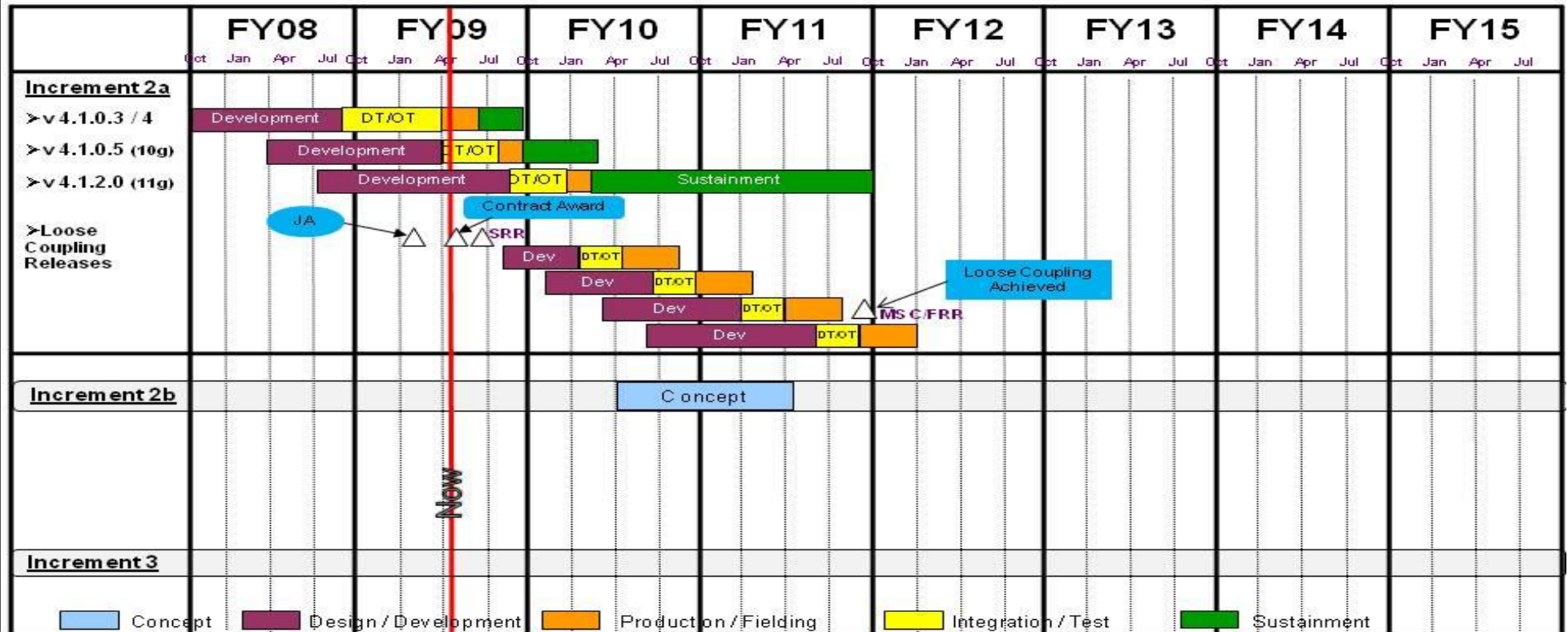
May 2009

BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0207438F Theater Battle Management (TBM) C4I

PROJECT NUMBER AND TITLE  
4802 Deliberate and Crisis Action Planning and Execution Segment (DCAPES)

# DCAPES Schedule



PB10 R-Docs

15 April 09

R-1 Line Item No. 152

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Project 4802

Exhibit R-4 (PE 0207438F)

Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0207438F Theater Battle Management (TBM) C4I</b>	PROJECT NUMBER AND TITLE <b>4802 Deliberate and Crisis Action Planning and Execution Segment (DCAPES)</b>
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(U) <u>Schedule Profile</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Increment 2a 4.1.2.0 Development	4Q	1-4Q	
(U) Increment 2a 4.1.2.0 Test and Fielding		4Q	1-2Q
(U) Loose Coupling Releases		4Q	1-4Q
(U) Increment 2b Concept Development			3-4Q

**UNCLASSIFIED**

PE NUMBER: 0207445F  
 PE TITLE: FIGHTER TACTICAL DATA LINK

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0207445F FIGHTER TACTICAL DATA LINK</b>
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	57.424	57.264	72.106	0.000	0.000	0.000	0.000	0.000	0.000	607.872
5043 Fighter Tactical Data Link	57.424	57.264	72.106	0.000	0.000	0.000	0.000	0.000	0.000	607.872

**(U) A. Mission Description and Budget Item Justification**

Tactical Data Links (TDL) as a subset of the broader Airborne Network are used in a combat environment to exchange information such as messages, data, radar tracks, target information, platform status, imagery, and command assignments. TDLs provide interoperability, local and global connectivity, and situational awareness to the user when operating under rapidly changing operational conditions. TDLs provide a jam-resistant; secure digital data transfer network capability with a new and standardized waveforms and data formats allowing Line of Sight (LOS) and Beyond Line of Sight (BLOS) intra- and inter-flight communications. TDLs are used by all Service theater Command and Control (C2) elements, weapons platforms, and sensors. TDLs include, but are not limited to: Link 16, Link 11, Situational Awareness Data Link (SADL), Variable Message Format (VMF), Integrated Broadcast Service (IBS), Intra-Flight Data Link (IFDL), Tactical Targeting Network Technology (TTNT), and Multifunction Advanced Data Link (MADL). The Joint Requirements Oversight Council (JROC) recently approved the MADL waveform for all low observable platforms, to include the F-22, B-2, and F-35 and the MADL Overarching Integrated Product Team (OIPT) approved enterprise level management and support for MADL Development.

This effort provides critical capability and enhancements to the Airborne Network by creating common development, integration and interoperability among all Air Force fighter platforms to include but not limited to A-10, F-15A-E, F-16 Blocks 30/40/50, F-22A, and F-35 aircraft. Keeps all fighter platforms and datalinked weapons current, interoperable in the network, and compatible with the USAF Global Strike Task Force (GSTF) beyond 2020. Also expands LOS and BLOS data link capabilities. TDLs increase mission effectiveness, provide situational awareness, and provide positive identification of aircraft in the network, correlate on- and off-board sensor data sharing, target, and threat information, and provide the datalink to accomplish time critical targeting and other mission update functions. TDL efforts include incorporating changes and additions to TDL message standards (e.g. MIL-STD-6016C) and applicable Interface Change Proposals (ICPs); future development of MADL waveform specification, message standards (MIL-STD-6019) and modeling and simulation; MADL enterprise level planning and testing; assisting with AF and Joint interoperability certification testing; future development, integration, and verification of Operational Flight Program (OFP) upgrades due to TDL integration; support of data gathering processes; studying and incorporating data link technologies to ensure effectiveness and efficiency of the Global Strike and Global Persistent Attack CONOPS; and incorporating Interoperable Systems Management and Requirements Transformation (iSMART), a process which enables network centric interoperability assessments to be made more quickly and effectively.

Activities also include studies and analysis to support both current program planning and execution and future program planning.

Fighter Tactical Data Link program is in Budget Activity 7, Operational System Development, since it supports integration of tactical data links into operational systems.

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207445F FIGHTER TACTICAL DATA LINK

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	38.944	62.788	90.709
(U) Current PBR/President's Budget	57.424	57.264	72.106
(U) Total Adjustments	18.480	-5.524	
(U) Congressional Program Reductions		-5.368	
Congressional Rescissions		-0.156	
Congressional Increases			
Reprogrammings	19.563		
SBIR/STTR Transfer	-1.083		

(U) **Significant Program Changes:**

In FY08, Fighters PE was increased by \$20.05M to synchronize the current Advanced TDL development schedule with funding requirements (\$9.0M OMNIBUS and \$11.05M BTR). There were also two BTRs out (-\$0.126M NSSO and -\$0.361M GALAXY).

In FY09, F-22A was reduced by \$5.0M for Advanced Tactical Data Link Program Delay



<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0207445F FIGHTER TACTICAL DATA LINK</b>	<b>PROJECT NUMBER AND TITLE</b> <b>5043 Fighter Tactical Data Link</b>
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5043 Fighter Tactical Data Link	57.424	57.264	72.106	0.000	0.000	0.000	0.000	0.000	0.000	607.872
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

Tactical Data Links (TDL) as a subset of the broader Airborne Network are used in a combat environment to exchange information such as messages, data, radar tracks, target information, platform status, imagery, and command assignments. TDLs provide interoperability, local and global connectivity, and situational awareness to the user when operating under rapidly changing operational conditions. TDLs provide a jam-resistant; secure digital data transfer network capability with a new and standardized waveforms and data formats allowing Line of Sight (LOS) and Beyond Line of Sight (BLOS) intra- and inter-flight communications. TDLs are used by all Service theater Command and Control (C2) elements, weapons platforms, and sensors. TDLs include, but are not limited to: Link 16, Link 11, Situational Awareness Data Link (SADL), Variable Message Format (VMF), Integrated Broadcast Service (IBS), Intra-Flight Data Link (IFDL), Tactical Targeting Network Technology (TTNT), and Multifunction Advanced Data Link (MADL). The Joint Requirements Oversight Council (JROC) recently approved the MADL waveform for all low observable platforms, to include the F-22, B-2, and F-35 and the MADL Overarching Integrated Product Team (OIPT) approved enterprise level management and support for MADL Development.

This effort provides critical capability and enhancements to the Airborne Network by creating common development, integration and interoperability among all Air Force fighter platforms to include but not limited to A-10, F-15A-E, F-16 Blocks 30/40/50, F-22A, and F-35 aircraft. Keeps all fighter platforms and datalinked weapons current, interoperable in the network, and compatible with the USAF Global Strike Task Force (GSTF) beyond 2020. Also expands LOS and BLOS data link capabilities. TDLs increase mission effectiveness, provide situational awareness, and provide positive identification of aircraft in the network, correlate on- and off-board sensor data sharing, target, and threat information, and provide the datalink to accomplish time critical targeting and other mission update functions. TDL efforts include incorporating changes and additions to TDL message standards (e.g. MIL-STD-6016C) and applicable Interface Change Proposals (ICPs); future development of MADL waveform specification, message standards (MIL-STD-6019) and modeling and simulation; MADL enterprise level planning and testing; assisting with AF and Joint interoperability certification testing; future development, integration, and verification of Operational Flight Program (OFP) upgrades due to TDL integration; support of data gathering processes; studying and incorporating data link technologies to ensure effectiveness and efficiency of the Global Strike and Global Persistent Attack CONOPS; and incorporating Interoperable Systems Management and Requirements Transformation (iSMART), a process which enables network centric interoperability assessments to be made more quickly and effectively.

Activities also include studies and analysis to support both current program planning and execution and future program planning.

Fighter Tactical Data Link program is in Budget Activity 7, Operational System Development, since it supports integration of tactical data links into operational systems.

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<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0207445F FIGHTER TACTICAL DATA LINK</b>	<b>PROJECT NUMBER AND TITLE</b> <b>5043 Fighter Tactical Data Link</b>
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<b>(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) F-22A Advanced Tactical Data Link development	40.764	33.726	68.030
(U) MADL Enterprise		10.165	
(U) F-15 Suite 6 Upgrades	3.491	5.228	
(U) Development and integration of A-10 SADL/Enhanced Precision Location Reporting System (EPLRS) and IDM capabilities	8.328	1.482	
(U) Fighter Tactical Data Link system engineering analysis, development, testing, integration, and technical support of common Fighter data link technology and capabilities	4.841	6.663	4.076
(U) Total Cost	57.424	57.264	72.106

<b>(U) <u>C. Other Program Funding Summary (\$ in Millions)</u></b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to Complete</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>		
(U) AF RDT&E										
(U) 0207434F (Link 16 Sup & Sus)	186.371	192.460	0.000						Continuing	TBD
(U) 0207446F (Bomber TDL)	38.280	11.603	0.000							49.883
(U) 0207448F (C2ISR TDL)	1.745	1.719	1.667						Continuing	TBD
(U) 0401839F (Airlift TDL)	4.300	7.923	0.000							
(U) 0604281F (TDN Enterprise)	0.000	0.000	88.444							
(U) Other APPN										
(U) Procurement (3010)										
(U) 0207434F (Link 16 Sup & Sus)	0.001	0.008	0.000						Continuing	TBD
(U) 0207445F (Fighter TDL)	24.877	5.788	9.616							40.281
(U) 0207446F (Bomber TDL)	4.426	0.000	0.000							4.426
(U) 0401839F (Airlift TDL)	12.394	0.000	0.000						Continuing	TBD
(U) O&M (3400)										
(U) 0207434F (Link 16 Sup & Sus)	29.405	22.104	0.359							TBD
(U) 0207445F (Fighter TDL)	0.300	0.281	0.219							
(U) 0401839F (Airlift TDL)	3.907	6.469	10.242						Continuing	TBD
(U) 0604281F (TDN Enterprise)	0.000	0.000	34.850							

R-1 Line Item No. 153

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Project 5043

Exhibit R-2a (PE 0207445F)

Exhibit R-2a, RDT&E Project Justification

DATE

May 2009

BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0207445F FIGHTER TACTICAL DATA LINK</b>	PROJECT NUMBER AND TITLE <b>5043 Fighter Tactical Data Link</b>
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(U) **C. Other Program Funding Summary (\$ in Millions)**

(U) Other Procurement (3080)					
(U) 0207434F (Link 16 Sup & Sus)	22.980	16.079	0.000		Continuing TBD
(U) 0604281F (TDN Enterprise)	0.000	0.000	32.441		

(U) **D. Acquisition Strategy**

653rd Electronics Systems Group (ELSG) provides for common development, integration and interoperability across all Air Force platforms and ensures that Tactical Data Links are procured and maintained as a joint, end-to-end, command and control system. Platform acquisition strategies vary by program, but the majority of development and integration is normally accomplished by the weapon system prime contractors

UNCLASSIFIED

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>							<b>PE NUMBER AND TITLE</b> <b>0207445F FIGHTER TACTICAL DATA LINK</b>			<b>PROJECT NUMBER AND TITLE</b> <b>5043 Fighter Tactical Data Link</b>		
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<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> F-22A Advanced Tactical Data Link Development and Integration	MIPR/AF Form 616	Lockheed Martin, Fort Worth, TX	0.000	40.764	Sep-08	33.726	Dec-08	68.030	Oct-09	Continuing	TBD	TBD
MADL Enterprise	MIPR/AF 616	Lockheed Martin, Fort Worth, TX; Various contractors managed by ESC, AFRL, and ASC WPAFB, OH				10.165	Apr-09				10.165	
F-15 Suite 6 Upgrades	AF 616	Boeing, St. Louis, MO	0.000	3.491	Sep-08	5.228	Oct-08				8.719	
Development and Integration of A-10 SADL/EPLRS and IDM Capability	AF Form 616	WPAFB, OH	0.000	8.328	May-08	1.482	Dec-08				9.810	
Subtotal Product Development			0.000	52.583		50.601		68.030		Continuing	TBD	TBD
Remarks:	*MIPR/AF Form 616 funding to Fighter platform program offices for scheduled contract awards and development efforts.											
(U) <u>Test &amp; Evaluation</u>												
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Management</u> Common Fighter Data Link Support	MIPR/AF Form 616/AFMC Form 36	Various contractors managed by ESC, AFRL and ASC WPAFB, OH/SPAWAR, San Diego, CA	0.000	4.841	Sep-08	6.663	Oct-08	4.076	Oct-09	Continuing	TBD	TBD
											0.000	

R-1 Line Item No. 153

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Project 5043

Exhibit R-3 (PE 0207445F)

UNCLASSIFIED

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE		PROJECT NUMBER AND TITLE		
<b>07 Operational System Development</b>				<b>0207445F FIGHTER TACTICAL DATA LINK</b>		<b>5043 Fighter Tactical Data Link</b>		
Subtotal Management	0.000	4.841	6.663	4.076	Continuing	TBD	TBD	
Remarks:								
(U) Total Cost	0.000	57.424	57.264	72.106	Continuing	TBD	TBD	

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY  
07 Operational System Development

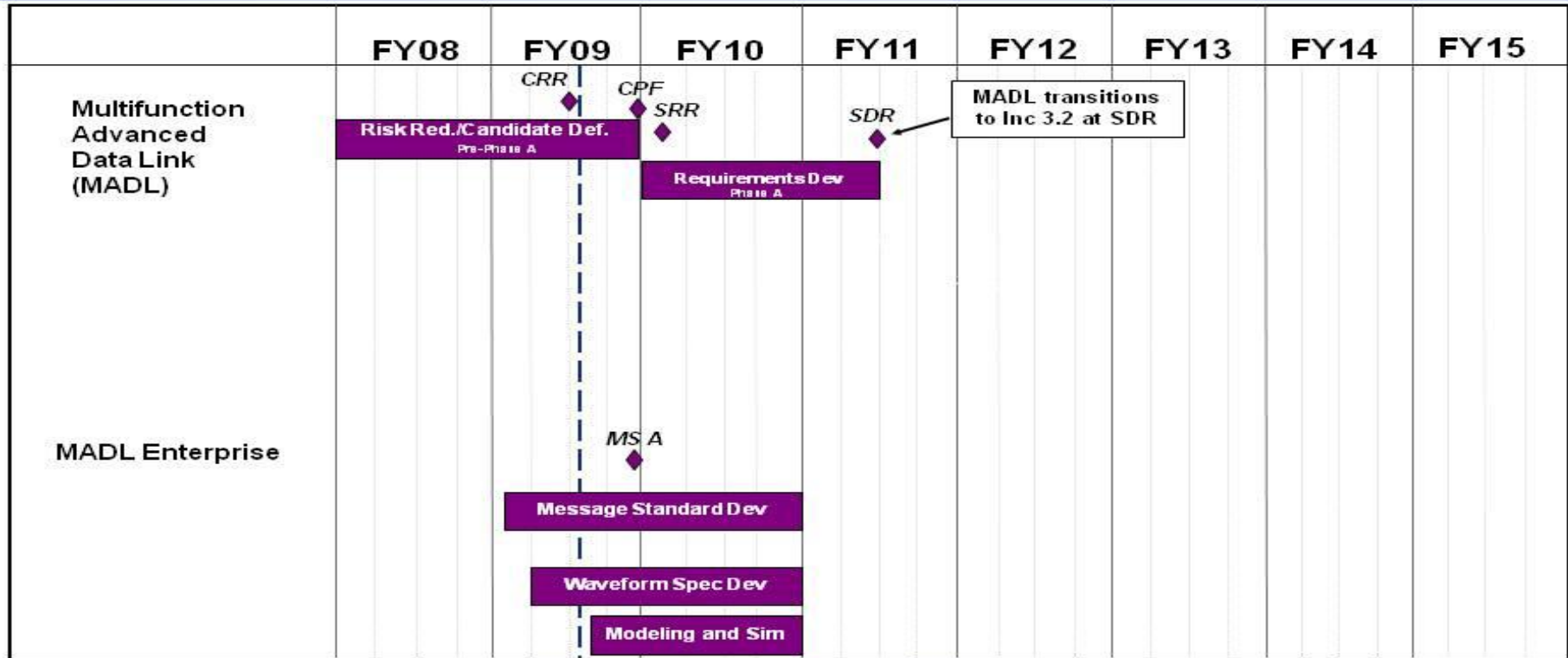
PE NUMBER AND TITLE  
0207445F FIGHTER TACTICAL DATA LINK

PROJECT NUMBER AND TITLE  
5043 Fighter Tactical Data Link



# F-22 MADL/MADL Enterprise Schedule

as of 21 Apr 09



■ Concept   
 ■ Design / Development   
 ■ Production / Fielding   
 ■ Integration / Test   
 ■ Sustainment  
◆ Key events

*Integrity - Service - Excellence*

R-1 Line Item No. 153

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Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0207445F FIGHTER TACTICAL DATA  
LINK

PROJECT NUMBER AND TITLE  
5043 Fighter Tactical Data Link



# F-15 Data Link Schedule

CAO 20 Apr 09



	FY 08	FY 09	FY 10	FY 11	FY 12	FY 13	FY 14	FY 15
<b>OFP Suite Development</b>	Suite 6 Integration & Testing							
OA: Operational Acceptance DT/OT: Combined Developmental and Operational Testing			IOT&E: Initial Operational Test & Evaluation FDE: Force Development Evaluation					

Design / development

Integration / test

Installs

Sustainment

*Integrity - Service - Excellence*

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY  
07 Operational System Development

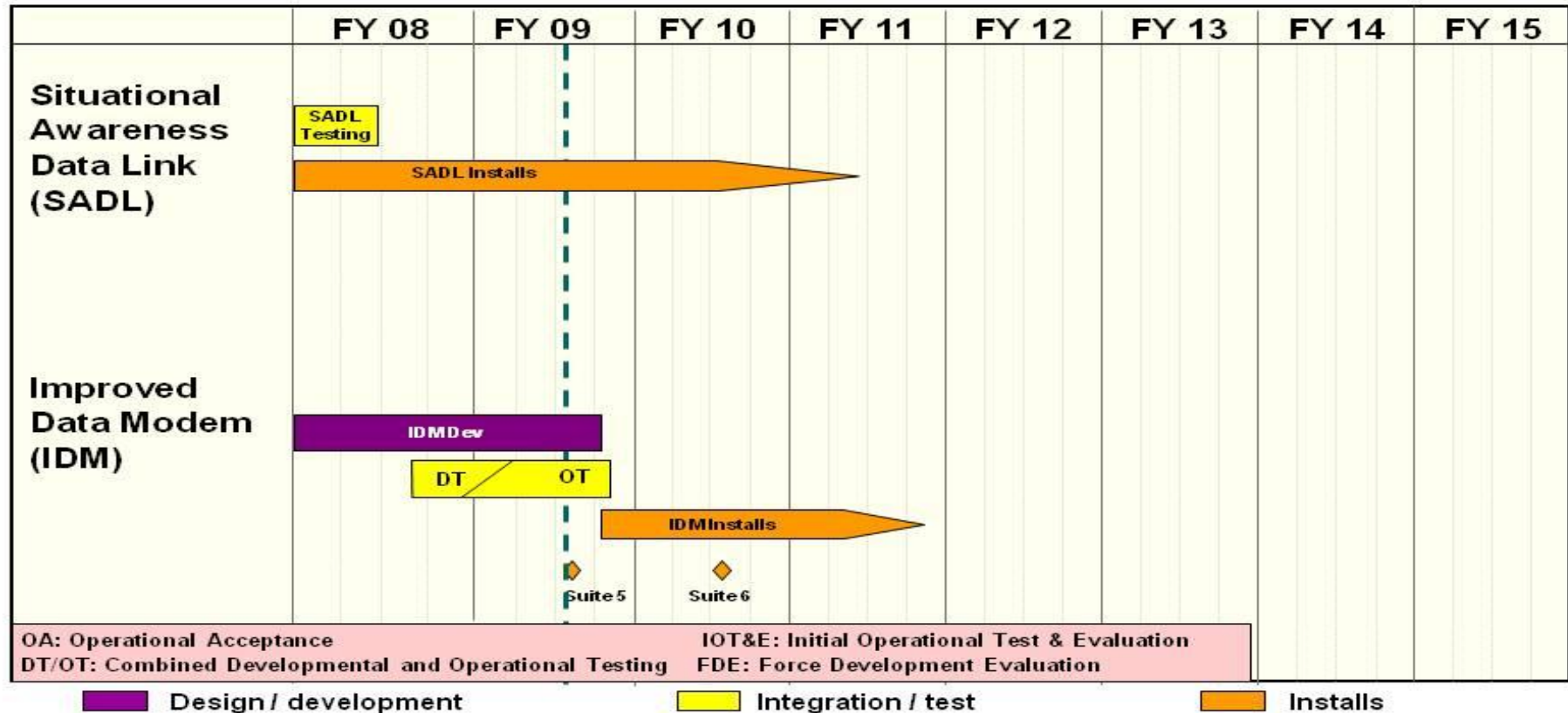
PE NUMBER AND TITLE  
0207445F FIGHTER TACTICAL DATA  
LINK

PROJECT NUMBER AND TITLE  
5043 Fighter Tactical Data Link



# A-10 Data Link Schedule

CAO 20 Apr 09



*Integrity - Service - Excellence*



Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0207445F FIGHTER TACTICAL DATA LINK</b>	PROJECT NUMBER AND TITLE <b>5043 Fighter Tactical Data Link</b>
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(U) <u>Schedule Profile</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) F-22A MADL Risk Reduction and Candidate Definition Pre-Phase A	1-4Q	1-4Q	
(U) F-22A MADL Requirements Development Phase A			1-4Q
(U) MADL Enterprise Message Standard Development		1-4Q	1-4Q
(U) MADL Enterprise Waveform Spec Development		2-4Q	1-4Q
(U) MADL Enterprise Modeling and Simulation		3-4Q	1-4Q
(U) F-15 Suite 6 Integration and Testing	1-4Q	1-4Q	1-2Q
(U) A-10 SADL Testing	1-2Q		
(U) A-10 SADL Installs	1-4Q	1-4Q	1-4Q
(U) A-10 IDM Development	1-4Q	1-4Q	
(U) A-10 IDM Developmental Testing/Operational Testing	3-4Q	1-4Q	
(U) A-10 IDM Installs		4Q	1-4Q
* APAF funded (PE 0207445F)			

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**UNCLASSIFIED**

PE NUMBER: 0207446F  
 PE TITLE: Bomber Tactical Data Link

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0207446F Bomber Tactical Data Link</b>
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	38.280	11.603	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5041 Bomber Tactical Data Link	38.280	11.603	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

**(U) A. Mission Description and Budget Item Justification**

Tactical Data Links (TDL), as a subset of the broader Airborne Network, are used in a combat environment to exchange information such as messages, data, radar tracks, target information, platform status, imagery, and command assignments. TDLs provide interoperability, local and global connectivity, and situational awareness to the user when operating under rapidly changing operational conditions. TDLs provide a jam-resistant, secure digital data transfer network capability with new and standardized waveforms and data formats allowing Line of Sight (LOS) and Beyond Line of Sight (BLOS) intra- and inter-flight communications. TDLs are used by all Service theater Command and Control (C2) elements, weapons platforms, and sensors. TDLs include, but are not limited to: Link 16, Link 11, Situational Awareness Data Link (SADL), Variable Message Format (VMF), Integrated Broadcast Service (IBS), Multifunction Advanced Data Link (MADL), and Tactical Targeting Network Technology (TTNT).

This effort provides critical capability and enhancements to the Airborne Network by creating common development, integration, and interoperability among all Air Force bomber platforms to include, but not limited to B-1B, B-2, and B-52 aircraft. Keeps all bomber platforms and data linked weapons current, interoperable in the network, and compatible with the USAF Global Strike Task Force (GSTF) concept beyond 2020. Also expands LOS and BLOS data link capabilities. TDLs increase mission effectiveness, provide situational awareness, provide positive identification of aircraft in the network, correlate on- and off-board sensor data sharing, target, and threat information, and provide the data link to accomplish time critical targeting and other mission update functions. The BLOS data link capability works with Link 16 to extend the range of local Link 16 networks to other areas/theaters. TDL efforts include incorporating changes and additions to the TDL message standard (MIL-STD-6016C) and applicable Interface Change Proposals (ICPs); assisting with AF and Joint interoperability certification testing; future development, integration, and verification of Operational Flight Program (OFP) upgrades due to TDL integration; support of data gathering processes; studying and incorporating data link technologies to ensure effectiveness and efficiency of the Global Strike CONOPS and Global Persistent Attack CONOPS; and incorporating Interoperable Systems Management and Requirements Transformation (iSMART), a process which enables network centric interoperability assessments to be made more quickly and effectively.

Bomber platforms have both current work and future plans for Tactical Data Links. The B-1 FIDL program is ongoing, and efforts are being made to obtain additional funds in future years for B-1 FIDL. B-2 will need future years dollars for MADL integration, and B-52 is not yet funded for Tactical Data Links.

Activities also include studies and analysis to support both current program planning and execution and future program planning.

Bomber Tactical Data Link program is in Budget Activity 7, Operational System Development, since it supports integration of tactical data links into operational systems.

Exhibit R-2, RDT&E Budget Item Justification

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207446F Bomber Tactical Data Link

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	36.875	11.702	
(U) Current PBR/President's Budget	38.280	11.603	
(U) Total Adjustments	1.405	-0.099	
(U) Congressional Program Reductions		-0.067	
Congressional Rescissions		-0.032	
Congressional Increases			
Reprogrammings	2.400	0.000	
SBIR/STTR Transfer	-0.995	0.000	

(U) **Significant Program Changes:**

In FY09, funding was added to complete B-1 Fully Integrated Data Links (FIDL) System Development and Demonstration (SDD) to align with the aircraft programmed depot maintenance schedule.

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>					PE NUMBER AND TITLE <b>0207446F Bomber Tactical Data Link</b>			PROJECT NUMBER AND TITLE <b>5041 Bomber Tactical Data Link</b>		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5041 Bomber Tactical Data Link	38.280	11.603	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

Tactical Data Links (TDL), as a subset of the broader Airborne Network, are used in a combat environment to exchange information such as messages, data, radar tracks, target information, platform status, imagery, and command assignments. TDLs provide interoperability, local and global connectivity, and situational awareness to the user when operating under rapidly changing operational conditions. TDLs provide a jam-resistant, secure digital data transfer network capability with new and standardized waveforms and data formats allowing Line of Sight (LOS) and Beyond Line of Sight (BLOS) intra- and inter-flight communications. TDLs are used by all Service theater Command and Control (C2) elements, weapons platforms, and sensors. TDLs include, but are not limited to: Link 16, Link 11, Situational Awareness Data Link (SADL), Variable Message Format (VMF), Integrated Broadcast Service (IBS), Multifunction Advanced Data Link (MADL), and Tactical Targeting Network Technology (TTNT).

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Bomber platforms have both current work and future plans for Tactical Data Links. The B-1 FIDL program is ongoing, and efforts are being made to obtain additional funds in future years for B-1 FIDL. B-2 will need future years dollars for MADL integration, and B-52 is not yet funded for Tactical Data Links.

Activities also include studies and analysis to support both current program planning and execution and future program planning.

Bomber Tactical Data Link program is in Budget Activity 7, Operational System Development, since it supports integration of tactical data links into operational systems.

UNCLASSIFIED

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>May 2009</b>
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BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0207446F Bomber Tactical Data Link</b>	PROJECT NUMBER AND TITLE <b>5041 Bomber Tactical Data Link</b>
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(U) <b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Common Bomber Tactical Data Link (TDL) analysis, systems engineering, testing, and technical support	4.368	4.003	
(U) B-1 FIDL System Development and Demonstration (SDD)	33.912	7.600	
(U) Total Cost	38.280	11.603	0.000

(U) <b><u>C. Other Program Funding Summary (\$ in Millions)</u></b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E										
(U) 0207434F (Link 16 Sup & Sus)	186.371	192.460	0.000						Continuing	TBD
(U) 0207445F (Fighter TDL)	57.424	57.264	72.106							343.735
(U) 0207448F (C2ISR TDL)	1.745	1.719	1.667						Continuing	TBD
(U) 0401839F (Airlift TDL)	4.300	7.923	0.000							
(U) 0604281F (TDN Enterprise)	0.000	0.000	88.444							
(U) Other APPN										
(U) Procurement (3010)										
(U) 0207434F (Link 16 Sup & Sus)	0.001	0.008	0.000						Continuing	TBD
(U) 0207445F (Fighter TDL)	24.877	5.788	9.616							419.662
(U) 0207446F (Bomber TDL)	4.426	0.000	0.000							4.426
(U) 0401839F (Airlift TDL)	12.394	0.000	0.000						Continuing	TBD
(U) O&M (3400)										
(U) 0207434F (Link 16 Sup & Sus)	29.405	22.104	0.359						Continuing	TBD
(U) 0207445F (Fighter TDL)	0.300	0.281	0.219							
(U) 0401839F (Airlift TDL)	3.907	6.469	10.242						Continuing	TBD
(U) 0604281F (TDN Enterprise)	0.000	0.000	34.850							
(U) Other Procurement (3080)										
(U) 0207434F (Link 16 Sup & Sus)	22.980	16.079	0.000						Continuing	TBD
(U) 0604281F (TDN Enterprise)	0.000	0.000	32.441							

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207446F Bomber Tactical Data Link

PROJECT NUMBER AND TITLE

5041 Bomber Tactical Data Link

(U) D. Acquisition Strategy

The 653rd Electronic Systems Group (ELSG) provides for common development, integration and interoperability across the entire Airborne Network and ensures that data links are procured and maintained as a joint, end-to-end, command and control system. Platform acquisition strategies vary by program, but the majority of development and integration is normally accomplished by the weapon system prime contractor.

UNCLASSIFIED

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>07 Operational System Development</b>				<b>0207446F Bomber Tactical Data Link</b>					<b>5041 Bomber Tactical Data Link</b>			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
<b>(U) Product Development</b>												
B-1 FIDL System Development and Demonstration (SDD) *	SS/CPIF	Boeing		33.993	Nov-07	7.600	Nov-08			0.000	41.593	194.234
B-52 System Development and Demonstration (SDD) *	CPFF	Boeing, Wichita, KS				0.000				0.000	0.000	
Bomber TDL analysis, systems engineering & technical support/MITRE	Various	Various		1.617	Nov-07	0.316	Jan-09			Continuing	TBD	TBD
B-1 Training System	C/FPIF	Rockwell Collins				0.000				0.000	0.000	
B-2 Message Implementation	CPFF	Northrop Grumman									0.000	
B-52 Training System	C/FFP	Rockwell Collins				0.000				0.000	0.000	
Subtotal Product Development			0.000	35.610		7.916		0.000		Continuing	TBD	TBD
Remarks:	*MIPR funding to Bomber platform program offices for scheduled contract awards and development efforts.											
<b>(U) Management</b>												
Program Office and Contractor Support	C/FFP	Various		1.065	Dec-07	1.354	Apr-09			Continuing	TBD	TBD
Subtotal Management			0.000	1.065		1.354		0.000		Continuing	TBD	TBD
Remarks:												
<b>(U) Test &amp; Evaluation</b>												
B-1 Lab Development	CPPF	Tinker AFB, OK		1.105	Dec-07	1.203	Feb-09				2.308	
B-1 FIDL Testing	Project Order	AF Flight Test Center, Edwards AFB, CA		0.500	Jan-08	1.130	Mar-09			0.000	1.630	
Subtotal Test & Evaluation			0.000	1.605		2.333		0.000		0.000	3.938	0.000
Remarks:												
(U) Total Cost			0.000	38.280		11.603		0.000		Continuing	TBD	TBD



Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

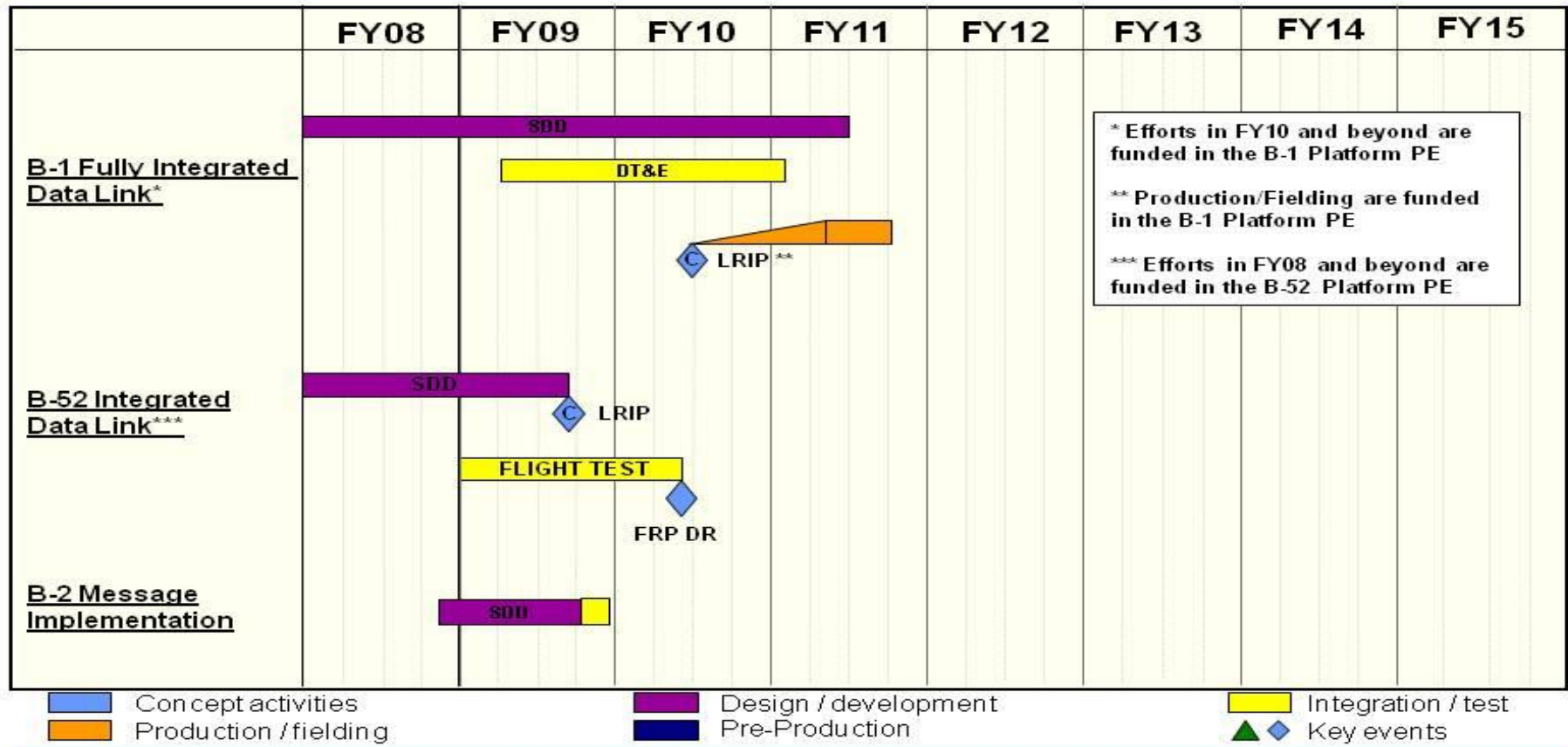
BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0207446F Bomber Tactical Data Link

PROJECT NUMBER AND TITLE  
5041 Bomber Tactical Data Link



# PE 0207446F Bomber Tactical Data Link Schedule (as of 20 Apr 2009)



PB10 R-Docs

Depicted by in stallation/production flow

1

<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0207446F Bomber Tactical Data Link</b>	<b>PROJECT NUMBER AND TITLE</b> <b>5041 Bomber Tactical Data Link</b>
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<b>(U) <u>Schedule Profile</u></b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) B-1 Fully Integrated Data Link SDD*	1-4Q	1-4Q	1-4Q
(U) B-1 Fully Integrated Data Link MS C/LRIP*			2Q
(U) B-1 Fully Integrated Data Link Flight Test (DT&E)*		2-4Q	1-4Q
(U) B-1 Fully Integrated Data Link/Production/Integration**			2-4Q
(U) B-52 Integrated Data Link SDD***	1-4Q	1-3Q	
(U) B-52 Integrated Data Link MS C/LRIP ***		3Q	
(U) B-52 Integrated Data Link Flight Test***		1-4Q	1-2Q
(U) B-2 Message Implementation	4Q	1-4Q	
* Efforts in FY10 and beyond are funded in the B-1 Platform PE			
**Production/Integration/Fielding are funded in B-1 PE starting in FY10			
*** Funded in B-52 Platform PE starting FY08			

**UNCLASSIFIED**

PE NUMBER: 0207448F  
 PE TITLE: C2ISR Tactical Data Link

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0207448F C2ISR Tactical Data Link</b>
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	1.745	1.719	1.667	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5045 C2ISR Tactical Data Link	1.745	1.719	1.667	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

**(U) A. Mission Description and Budget Item Justification**

Tactical Data Links (TDL), as a subset of the broader Airborne Network are used in a combat environment to exchange information such as messages, data, radar tracks, target information, platform status, imagery, and command assignments. TDLs provide interoperability, local and global connectivity, and situational awareness to the user when operating under rapidly changing operational conditions. TDLs provide a jam-resistant; secure digital data transfer network capability with new and standardized waveforms and data formats allowing Line of Sight (LOS) and Beyond Line of Sight (BLOS) intra- and inter-flight communications. TDLs are used by all Service theater Command and Control (C2) elements, weapons platforms, and sensors. TDLs include, but are not limited to: Link 16, Link 11, Situational Awareness Data Link (SADL), Variable Message Format (VMF), Integrated Broadcast Service (IBS), Intra-Flight Data Link (IFDL), Multifunction Advanced Data Link (MADL), and Tactical Targeting Network Technology (TTNT).

This effort provides critical capability and enhancements to the Airborne Network by creating common development, integration and interoperability among ground and C2 platforms including, but not limited to Airborne Warning and Control System (AWACS), Joint Surveillance Target Attack Radar System (JSTARS), the Air and Space Operations Center (AOC), Global Hawk, Predator, Reaper, Rivet Joint, Combat Sent, and Cobra Ball. TDLs keep all C2ISR Platforms and data linked weapons current/interoperable in the Airborne Network, and compatible with the USAF Global Strike Task Force (GSTF) beyond 2020. TDLs increase mission effectiveness, provide situational awareness, and provide positive identification of aircraft in the network, correlate on- and off-board sensor data sharing, target, and threat information, and provide the datalink to accomplish time critical targeting and other mission update functions. TDL efforts include incorporating changes and additions to the Link-16 message standard (MIL-STD-6016C) and applicable Interface Change Proposals (ICPs), assisting with AF and Joint interoperability certification testing with the Air Force Global Cyberspace Integration Center (GCIC) and Joint Interoperability Test Center (JITC); future development, integration, and verification of Operational Flight Program (OFP) upgrades due to TDL integration; support of data gathering processes; studying and incorporating data link technologies to ensure effectiveness and efficiency of the Global Strike and Global Persistent Attack CONOPS; and incorporating Interoperable Systems Management and Requirements Transformation (iSMART), a process which enables network centric interoperability assessments to be made more quickly and effectively.

Activities also include studies and analysis to support both current program planning and execution and future program planning.

C2ISR Tactical Data Link program is in Budget Activity 7, Operational System Development, since it supports integration of tactical data links into operational systems.

Exhibit R-2, RDT&E Budget Item Justification

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207448F C2ISR Tactical Data Link

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	1.795	1.727	1.695
(U) Current PBR/President's Budget	1.745	1.719	1.667
(U) Total Adjustments	-0.050	-0.008	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.008	
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer	-0.050		
(U) <u>Significant Program Changes:</u>			

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>					PE NUMBER AND TITLE <b>0207448F C2ISR Tactical Data Link</b>			PROJECT NUMBER AND TITLE <b>5045 C2ISR Tactical Data Link</b>		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5045 C2ISR Tactical Data Link	1.745	1.719	1.667	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

Tactical Data Links (TDL), as a subset of the broader Airborne Network are used in a combat environment to exchange information such as messages, data, radar tracks, target information, platform status, imagery, and command assignments. TDLs provide interoperability, local and global connectivity, and situational awareness to the user when operating under rapidly changing operational conditions. TDLs provide a jam-resistant; secure digital data transfer network capability with new and standardized waveforms and data formats allowing Line of Sight (LOS) and Beyond Line of Sight (BLOS) intra- and inter-flight communications. TDLs are used by all Service theater Command and Control (C2) elements, weapons platforms, and sensors. TDLs include, but are not limited to: Link 16, Link 11, Situational Awareness Data Link (SADL), Variable Message Format (VMF), Integrated Broadcast Service (IBS), Intra-Flight Data Link (IFDL), Multifunction Advanced Data Link (MADL), and Tactical Targeting Network Technology (TTNT).

This effort provides critical capability and enhancements to the Airborne Network by creating common development, integration and interoperability among ground and C2 platforms including, but not limited to Airborne Warning and Control System (AWACS), Joint Surveillance Target Attack Radar System (JSTARS), the Air and Space Operations Center (AOC), Global Hawk, Predator, Reaper, Rivet Joint, Combat Sent, and Cobra Ball. TDLs keep all C2ISR Platforms and data linked weapons current/interoperable in the Airborne Network, and compatible with the USAF Global Strike Task Force (GSTF) beyond 2020. TDLs increase mission effectiveness, provide situational awareness, and provide positive identification of aircraft in the network, correlate on- and off-board sensor data sharing, target, and threat information, and provide the datalink to accomplish time critical targeting and other mission update functions. TDL efforts include incorporating changes and additions to the Link-16 message standard (MIL-STD-6016C) and applicable Interface Change Proposals (ICPs), assisting with AF and Joint interoperability certification testing with the Air Force Global Cyberspace Integration Center (GCIC) and Joint Interoperability Test Center (JITC); future development, integration, and verification of Operational Flight Program (OFP) upgrades due to TDL integration; support of data gathering processes; studying and incorporating data link technologies to ensure effectiveness and efficiency of the Global Strike and Global Persistent Attack CONOPS; and incorporating Interoperable Systems Management and Requirements Transformation (iSMART), a process which enables network centric interoperability assessments to be made more quickly and effectively.

Activities also include studies and analysis to support both current program planning and execution and future program planning.

C2ISR Tactical Data Link program is in Budget Activity 7, Operational System Development, since it supports integration of tactical data links into operational systems.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	FY 2008	FY 2009	FY 2010
(U) C2ISR data link integration and AWACS Block 30/35 Software Enhancements	1.537	1.719	1.667
(U) C2ISR data link integration and AWACS Block 40/45 Software Enhancements	0.208		
(U) Total Cost	1.745	1.719	1.667

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207448F C2ISR Tactical Data Link

PROJECT NUMBER AND TITLE

5045 C2ISR Tactical Data Link

(U) **C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E										
(U) 0207434F (Link 16 Sup & Sus)	186.371	192.460	0.000						Continuing	TBD
(U) 0207445F (Fighter TDL)	57.424	57.264	72.106						Continuing	TBD
(U) 0207446F (Bomber TDL)	38.280	11.603	0.000						Continuing	TBD
(U) 0401839F (Airlift TDL)	4.300	7.923	0.000							
(U) 0604281F (TDN Enterprise)	0.000	0.000	88.444							
(U) Aircraft Procurement, AF (3010)										
(U) 0207434F (Link 16 Sup & Sus)	0.001	0.008	0.000						Continuing	TBD
(U) 0207445F (Fighter TDL)	24.877	5.788	9.616						Continuing	TBD
(U) 0207446F (Bomber TDL)	4.426	0.000	0.000						Continuing	TBD
(U) 0401839F (Airlift TDL)	12.394	0.000	0.000						Continuing	TBD
(U) O&M (3400)										
(U) 0207434F (Link 16 Sup & Sus)	29.405	22.104	0.359						Continuing	TBD
(U) 0207445F (Fighter TDL)	0.300	0.281	0.219							
(U) 0401839F (Airlift 3400)	3.907	6.469	10.242						Continuing	TBD
(U) 0604281F (TDN Enterprise)	0.000	0.000	34.850							
(U) Other Procurement, AF (3080)										
(U) 0207434F (Link 16 Sup & Sus)	22.980	16.079	0.000						Continuing	TBD
(U) 0604281F (TDN Enterprise)	0.000	0.000	32.441							

(U) **D. Acquisition Strategy**

The 653rd Electronics Systems Group (ELSG) provides for common development, integration and interoperability across the entire Airborne Network and ensures that TDLs are procured and maintained as a joint, end-to-end, command and control system. Platform acquisition strategies vary by program, but the majority of development and integration is normally accomplished by the weapon system prime contractor.

UNCLASSIFIED

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE						PROJECT NUMBER AND TITLE		
<b>07 Operational System Development</b>				<b>0207448F C2ISR Tactical Data Link</b>						<b>5045 C2ISR Tactical Data Link</b>		
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
AWACS	SS/FFP/CP AF	Boeing, Seattle WA		1.293	Mar-08	1.276	Mar-09	1.360	Dec-09	Continuing	TBD	TBD
Subtotal Product Development			0.000	1.293		1.276		1.360		Continuing	TBD	TBD
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:	Test requirements are funded by platforms											
(U) <u>Management</u>												
Program Office and Contractor Support				0.452	Nov-07	0.443	Nov-08	0.307	Nov-09	Continuing	TBD	TBD
Subtotal Management			0.000	0.452		0.443		0.307		Continuing	TBD	TBD
Remarks:												
(U) Total Cost			0.000	1.745		1.719		1.667		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE  
May 2009

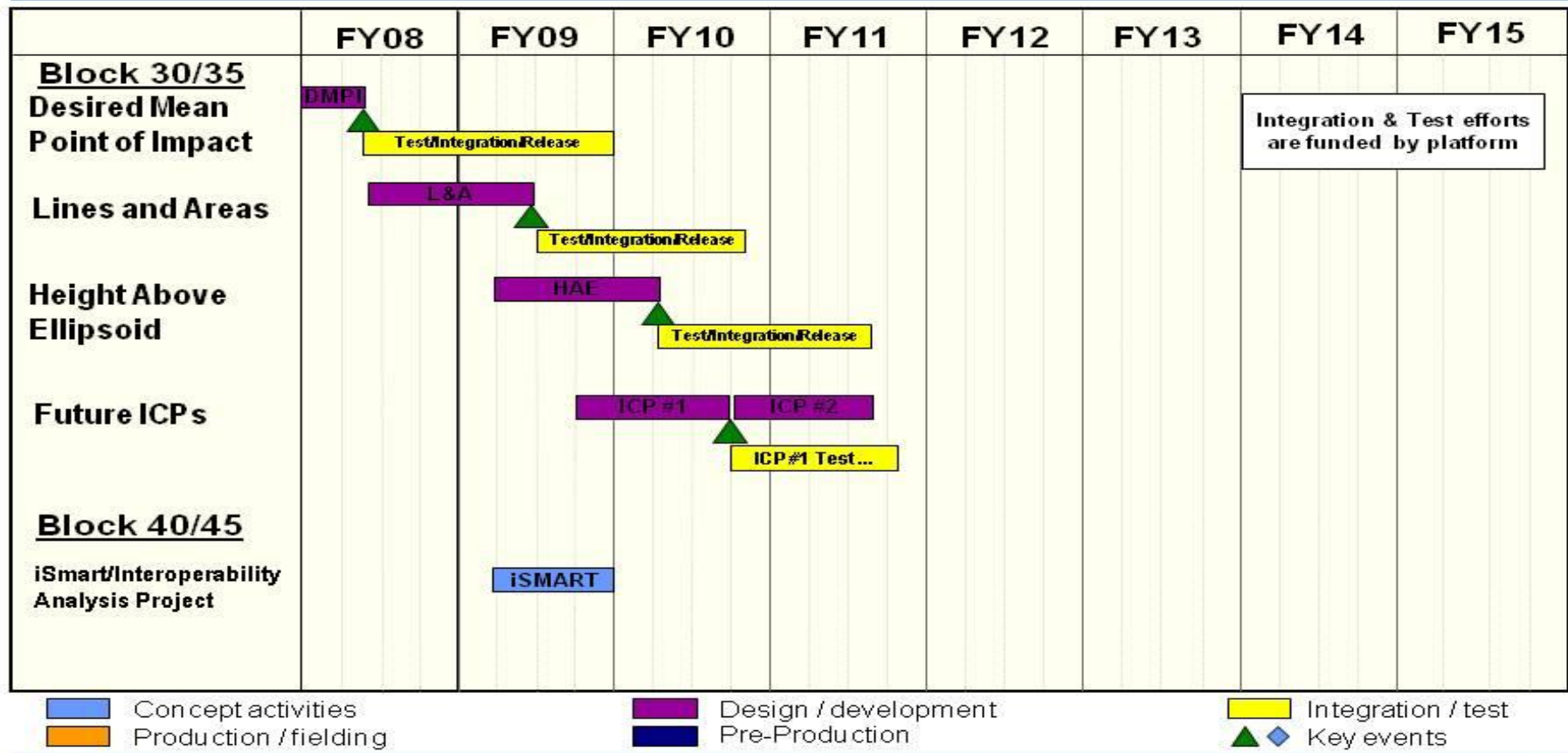
BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0207448F C2ISR Tactical Data Link

PROJECT NUMBER AND TITLE  
5045 C2ISR Tactical Data Link



# PE 0207448F C2ISR Tactical Data Link Schedule (as of 20 Apr 2009)



PB10 R-Docs

Depicted by installation/production flow

1



Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0207448F C2ISR Tactical Data Link</b>	PROJECT NUMBER AND TITLE <b>5045 C2ISR Tactical Data Link</b>
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(U) <u>Schedule Profile</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) AWACS 30/35 Desired Mean Point of Impact Design/Development	1-2Q		
(U) AWACS 30/35 Desired Mean Point of Impact Test/Integration/Release	2-4Q	1-4Q	
(U) AWACS 30/35 Lines & Areas Design/Development	2-4Q	1-2Q	
(U) AWACS 30/35 Lines & Areas Test/Integration/Release		3-4Q	1-4Q
(U) AWACS 30/35 Height Above Ellipsoid Design/Development		2-4Q	1-2Q
(U) AWACS 30/35 Height Above Ellipsoid Test/Integration/Release			2-4Q
(U) AWACS 30/35 Future ICP Design/Development		4Q	1-4Q
(U) AWACS 30/35 Future ICP Test/Integration/Release			4Q
(U) AWACS Block 40/45 iSMART Database Updates		1-4Q	

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0207449F C2 Constellation</b>
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	42.969	31.705	26.792	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5078 Horizontal Integration	11.301	15.083	11.967	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5140 Joint Expeditionary Force Experiments	31.668	16.622	14.825	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

**(U) A. Mission Description and Budget Item Justification**

Command and Control Constellation (C2C) efforts provide strategic, operational, and tactical direction for Doctrine, Organization, Training, Materiel, Leadership and Education, Personnel and Facilities (DOTMLPF) solutions to facilitate the integration of Global Effects that support Command and Control, Intelligence, Surveillance and Reconnaissance (C2ISR) planning and execution for air, space, and cyberspace. In-depth development and analyses of C2C operational, systems, and technical architectures are geared to identify capability gaps, identify required "TO BE" information services, evaluate C2ISR program planned improvements and document the results in a capability roadmap. The C2C incorporates rapidly developing technologies to promote common standards, data sharing and information services across Air Force and joint warfighting applications to support a network-centric, joint enterprise solution.

Project 5078, Horizontal Integration (HI) conducts DOTMLPF analysis and assessments to guide cross-cutting net-centric, C2ISR sub-enterprise and cyberspace investment decisions that integrate USAF capabilities into Department of Defense (DoD), joint and coalition operations. HI identifies, prioritizes, and develops horizontally integrated solution recommendations across the Services to ensure the latest technologies and information services into a cross cutting net centric C2 system that enables integrated Global Effects in all warfighter domains. The Fiscal Year 2010 strategy is validated by HQ AF/A3 and AF/A5 to ensure that initiatives are harmonized with the most urgent warfighter needs. Once validated, HI funds are applied toward identifying the most critical warfighter domain capabilities and ensuring they are horizontally integrated into both Air Force and Joint C2ISR programs of record.

Project 5140, Joint Expeditionary Force Experiments (JEFX) transitioned from a large bi-annual warfighting experiment in Fiscal Year 2009 to an agile, smaller, quarterly operational assessment profile. Live-fly forces are combined with simulations into an operationally representative warfighter environment that focus on areas of interest that support the warfighter. This includes C2ISR information that supports the cyberspace domain. These experiments provide a vehicle for experimentation with operational concepts and attendant new technologies that evolve and transform Air Force capabilities to meet emerging real world threats. The JEFX strategy is validated by HQ AF/A3 and A5 ensuring initiatives are harmonized with the most urgent warfighter needs. Yearly JEFX themes are based on emerging CONOPS and warfighter challenges. They are part of a broader effort to implement the Joint Vision 2020, exploit the Revolution in Military Affairs, demonstrate emerging Air Force capabilities to deploy and employ decisive air, space, and cyberspace power for the Joint Force Commander, and are important enablers of innovation and transformation.

This program is in Budget Activity 7- Operational System Development because it provides a vehicle for developers, testers, and warfighters to experiment, analyze, and explore operational concepts and new technologies to enhance operational system developments and improve future capabilities.

Exhibit R-2, RDT&E Budget Item Justification

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207449F C2 Constellation

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	44.582	32.151	29.464
(U) Current PBR/President's Budget	42.969	31.705	26.792
(U) Total Adjustments	-1.613	-0.446	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.446	
Congressional Increases			
Reprogrammings	-0.385		
SBIR/STTR Transfer	-1.228		
(U) <u>Significant Program Changes:</u>			
FY10: Changes in President's Budget due to reprogramming to meet higher Air Force priorities.			

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

May 2009

BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE		
07 Operational System Development				0207449F C2 Constellation				5078 Horizontal Integration		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5078 Horizontal Integration	11.301	15.083	11.967	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

Project 5078, Horizontal Integration (HI), is established to develop a Global Effects integrated capability to support cross-cutting net-centric solutions across air, space and Cyberspace C2ISR Warfighter domain. HI activities include studies and analysis to support both current program planning and execution and future program planning. HI defines the Command and Control Constellation (C2C) through six thrusts: first, requirements and planning documentation will be created/updated; second, architecture development and systems engineering policy will be developed to further refine the C2C and provide baseline data for more detailed analysis; third, analysis integration and systems engineers will perform analyses to validate and prioritize the major issues facing the C2C and develop net-centric roadmaps; fourth, technological analysis and applicability will be researched and applied; fifth, various Modeling & Simulation infrastructure and experimentation methods will be used to assess both non-materiel and materiel solutions; sixth, horizontal integration initiatives will be built, assessed, and transitioned to the warfighter as the final step in the C2C systems engineering process.

Program specifics are:

- (1) Requirements documents will be published and revised. A requirements database and implementation plan identifying the most significant C2C net-centric integration issues will continue to be developed to catalog the activities necessary to accomplish this integration.
- (2) Architecture Development and Systems Engineering is the 'glue' that holds C2C elements together, and closes the seams in the Command, Control, Communications Computers, Intelligence, Surveillance and Reconnaissance (C4ISR) architecture. C2C system and technical architectures, cross program requirements allocation, key cost drivers, risk assessments and corresponding risk mitigation strategies will be examined. The C2C architecture provides a framework for conducting analyses to identify capability gaps, compare alternatives for improving Joint warfighting capabilities and to identify associated resource implications. Capability analyses identifies areas where interoperability can be improved within the Air Force, among joint services, and among coalition partners. Once capability issues are identified through the architecture analyses, they are prioritized and capability roadmaps and pilot initiatives are developed to provide solutions to the warfighter that resolve the capability gaps.
- (3) Analysis Integration and Systems Engineering for Net-centric capability across C4ISR programs results in a Net-centric Strategic Plan which influences C4ISR program roadmaps. These roadmaps feed directly into the air, space and cyberspace C2ISR and C4ISR Net-centric flight plans. The plans provide Air Staff with issue development, data collection, data analysis, mapping of capabilities to system functions, and support the ability to develop trade space recommendations through use of a capability evolution methodology assessment tool.
- (4) Ops/Technology Analysis and Concept Development assists in the development of standards for net-centricity which must be synchronized with the joint community. Net-Centric Enterprise Solutions for Interoperability (NESI) standards, Technical Integration Architecture (TIA), and Strategic Technical Plan (STP) all provide cross-service guidance on standards and implementation. Interaction/integration with the joint community will occur through HI participation in United States Joint Forces Command (USJFCOM) Board of Directors and the Global Information Grid (GIG) Information Sharing Session (ISS).

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0207449F C2 Constellation</b>	PROJECT NUMBER AND TITLE <b>5078 Horizontal Integration</b>
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(5) Modeling and Simulation (M&S) Infrastructure and Experimentation leverages existing government/industry simulation sites that allow 'virtual' assessments of the C2 Constellation. For FY09, the C2C PE served as the pathway to Net Enabled Command Capability (NECC) by linking the "Cyber Hot Bench" environment with three JEFX events per year where operational assessments occur for the purpose of Joint exposure and participation. The Hot Bench manages a continuous distributed operational environment that supports air, space, and cyberspace C2ISR and cyberspace rapid acquisition, development, integration, and fielding. C2ISR and cyberspace initiatives use the Hot Bench to mature their development status prior to entry into JEFX for final operational assessment.

(6) Horizontal Integration Solutions Assessment evaluates an initiatives' performance for operational utility and Clinger-Cohen Act compliance, which includes an assessment of Global Information Grid (GiG) compliance (net-centricity and service orientation) and Information Assurance (IA). The most promising initiatives/technologies will be matured and transitioned into weapon system configuration control baselines.

This program is in Budget Activity 7 - Operational System Development because it provides developers, testers and warfighters a way to experiment, analyze, and explore operational concepts and new technologies to enhance operational system developments and improve future capabilities leading to a horizontally integrated C2ISR Warfighter Sub-enterprise.

(U) <b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Requirements/Planning documents creation/update	1.073	1.794	1.121
(U) Architecture Development and Systems Engineering	4.152	4.486	2.456
(U) Analysis Integration and Systems Engineering	3.255	3.347	1.577
(U) Ops/Tech Analysis and Concept Development	1.442	4.241	2.700
(U) M&S Infrastructure and Experimentation	0.164	0.173	0.000
(U) Horizontal Integration Solutions Assessment	1.215	1.042	4.113
(U) Total Cost	11.301	15.083	11.967

(U) <b><u>C. Other Program Funding Summary (\$ in Millions)</u></b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	<u>Total Cost</u>
(U) Not applicable										

(U) **D. Acquisition Strategy**  
When feasible, this project uses full and open competition for operational requirements document creation, systems engineering & architecture development, modeling & simulation and experimentation, joint interoperability/integration, and horizontal integration approaches.

UNCLASSIFIED

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0207449F C2 Constellation</b>	<b>PROJECT NUMBER AND TITLE</b> <b>5078 Horizontal Integration</b>
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(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>		
Requirements/Capability Based Planning (CBP)	FFRDC	MITRE Corp, ESC, Hanscom AFB, MA	1.563	0.351	Nov-07	0.367	Nov-08	0.582	Nov-09	Continuing	TBD	TBD		
	C/CPAF	ManTech ITSP, ESC, Hanscom AFB, MA	0.110	0.110	Dec-07	0.115	Dec-08			Continuing	TBD	TBD		
	Architecture Development and Systems Engineering	FFRDC	MITRE Corp, ESC, Hanscom AFB, MA	6.909	1.101	Nov-07	1.417	Nov-08	1.796	Nov-09	Continuing	TBD	TBD	
		C/CPAF	Lockheed Martin, ESC, Hanscom AFB, MA	2.218	0.396	Dec-07	0.414	Dec-08			Continuing	TBD	TBD	
		FFRDC	MITRE Corp GCIC Langley AFB VA	1.705	1.705	Oct-07	1.705	Oct-08	1.705	Oct-09	Continuing	TBD	TBD	
		IDIQ/T&M	Northrop Grumman & EDS, GCIC Hampton, VA	0.950	0.950	Oct-07	0.950	Oct-08	0.394	Oct-09	Continuing	TBD	TBD	
		Analysis, Integration, and SE/Capability Roadmaps	C/CPAF	Lockheed Martin, ESC, Hanscom AFB, MA	4.753	0.848	Dec-07	0.907	Dec-08			Continuing	TBD	TBD
			C/CPAF	Lockheed Martin/ESC, Hanscom AFB, MA	0.946	0.165	Dec-07	0.173	Dec-08			Continuing	TBD	TBD
	Tech Analysis and Concept Development	FFRDC	MITRE, ESC, Hanscom AFB, MA	1.755	0.770	Nov-07	0.805	Nov-08	1.227	Nov-09	Continuing	TBD	TBD	
		IDIQ/T&M	EDS GCIC 300 Exp.Way Hampton, Va	0.210	0.210	Dec-07	0.210	Dec-08			Continuing	TBD	TBD	
		IDIQ/T&M	Teledyne Brown GCIC 300 Exp Way Hampton, VA	0.880	0.880	Oct-07	1.312	Jan-09	2.747	Jan-10	Continuing	TBD	TBD	

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Project 5078

Exhibit R-3 (PE 0207449F)

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis										DATE May 2009		
BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE				
07 Operational System Development				0207449F C2 Constellation				5078 Horizontal Integration				
M&S Infrastructure and Experimentation	FFP	L-3 Titan AFCYBER LAFB VA		1.393	Jan-09				Continuing	TBD	TBD	
	FFP	Various AFCYBER LAFB VA		1.662	Jun-09	1.187	Nov-09	Continuing	TBD	TBD		
Horizontal Integration Solution Assessment	Various	Various ESC HAFB MA	1.442	Jun-08	1.042	Jun-09	1.543	Jun-10	Continuing	TBD	TBD	
Subtotal Product Development			21.999	8.928		12.472	11.181		Continuing	TBD	TBD	
Remarks:												
(U) <u>Support</u>												
Support	C/CPAF	Quantech PASS, ESC, Hanscom AFB, MA		1.071	Dec-07	1.252	Nov-08	0.298	Nov-09	Continuing	TBD	TBD
Subtotal Support			0.000	1.071		1.252	0.298		Continuing	TBD	TBD	
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
Engineering Analysis and Assessment	Various	GCIC, 300 Exp.Way, Hampton,Va	1.138	1.138	Nov-07	1.186	Nov-08	0.000		Continuing	TBD	TBD
Subtotal Test & Evaluation			1.138	1.138		1.186		0.000		Continuing	TBD	TBD
Remarks:												
(U) <u>Management</u>												
Program Management Support	C/CPAF	Quantech PASS, ESC, Hanscom AFB, MA		0.164	Nov-07	0.173	Nov-08	0.238	Nov-09	Continuing	TBD	TBD
Program Management Support	C/CPAF	Jacobs, ETASS, ESC, Hanscom AFB, MA						0.250	Dec-09	Continuing	TBD	TBD
Subtotal Management			0.000	0.164		0.173		0.488		Continuing	TBD	TBD
Remarks:												
(U)											0.000	0.000
Subtotal			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			23.137	11.301		15.083		11.967		Continuing	TBD	TBD



Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

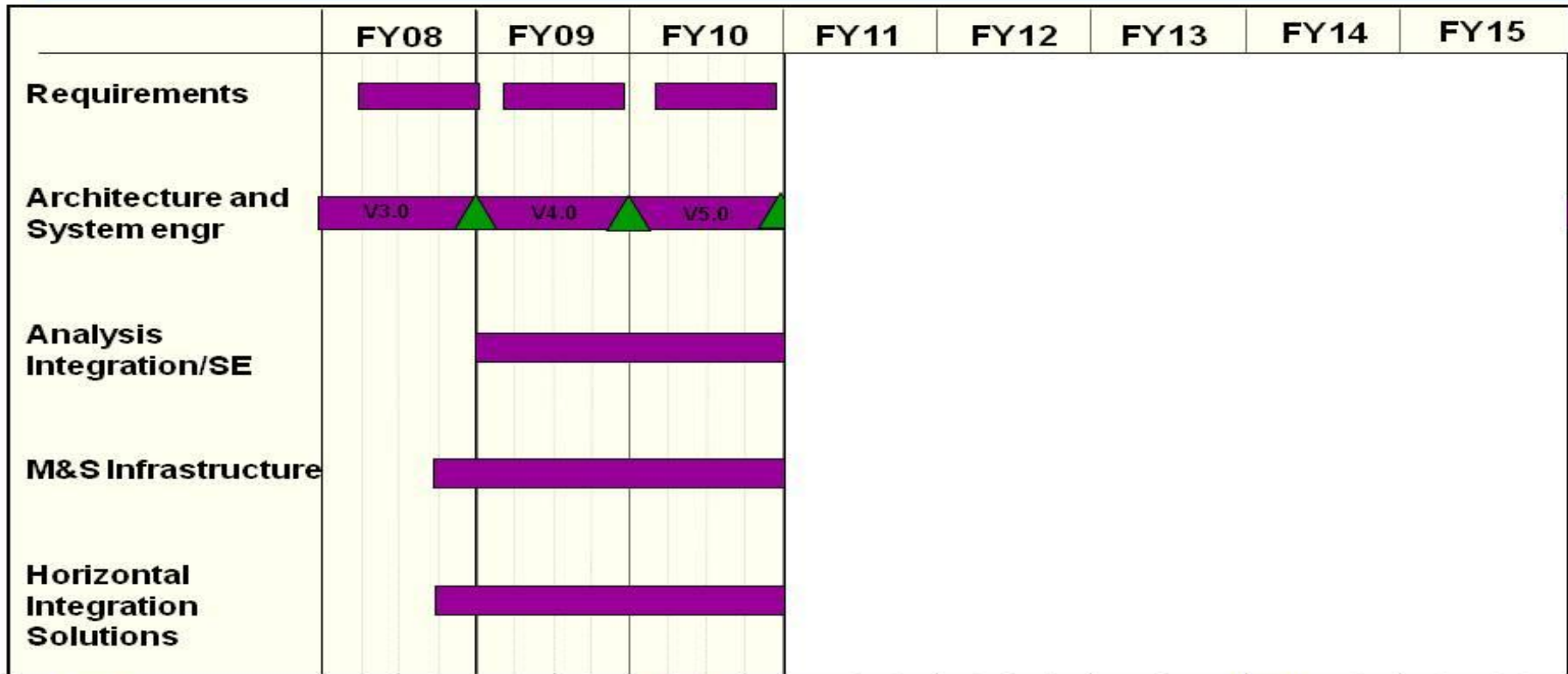
BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0207449F C2 Constellation

PROJECT NUMBER AND TITLE  
5078 Horizontal Integration



# Horizontal Integration Schedule



- █ Concept activities
- █ Design / development
- █ Integration / test
- █ Production / fielding
- █ Pre-Production
- █ Key events

**PB10 R-Docs**

Depicted by in stallation/production flow

1

Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0207449F C2 Constellation</b>	PROJECT NUMBER AND TITLE <b>5078 Horizontal Integration</b>
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(U) <u>Schedule Profile</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Requirements Documents	2-4Q	2-4Q	2-4Q
(U) Architecture Development and Systems Engineering	1-4Q	1-4Q	1-4Q
(U) Analysis (Integration/Ops/Tech) and Systems Engineering		1-4Q	1-4Q
(U) M&S Infrastructure and Experimentation	1-4Q	1-4Q	
(U) Horizontal Integration Initiatives	4Q	1-4Q	1-4Q

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

May 2009

BUDGET ACTIVITY		PE NUMBER AND TITLE						PROJECT NUMBER AND TITLE		
07 Operational System Development		0207449F C2 Constellation						5140 Joint Expeditionary Force Experiments		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5140 Joint Expeditionary Force Experiments	31.668	16.622	14.825	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) **A. Mission Description and Budget Item Justification**

The Joint Expeditionary Force Experiments (JEFX) / Limited Objective Experiments (LOE) are warfighter experiments that address emerging operational challenges and are part of the total Air Force (AF) experimentation effort. JEFX/LOE explores significant capability gaps across the range of AF Concept of Operations (CONOPS) and address critical lessons learned from recent operations. They combine live-fly forces and simulations into an operationally representative warfighter environment. JEFX/LOE provides a multi-dimensional, multi-national, multi-service environment for an end-to-end process of exploration, assessment, and transition of capabilities that will provide joint and coalition warfighters with solutions to gaps identified in the Capability Review and Risk Assessment (CRRRA) process and through lessons learned in recent and current operations. They are part of a broader effort to implement the Joint Vision 2020, demonstrate emerging Air Force capabilities to deploy and employ decisive aerospace power for the Joint Force Commander, and are important enablers of innovation and transformation. The integration of systems and process is the major reason JEFX is an experiment and not simply a demonstration or exercise.

Activities also include studies and analysis to support both current program planning and execution and future program planning.

This program is in Budget Activity 7 - Operational System Development because it provides horizontal integration, developers, testers, and warfighters to experiment, analyze, and explore operational concepts and new technologies to enhance operational system developments and improve capabilities of the air, space, and cyberspace forces.

(U) **B. Accomplishments/Planned Program (\$ in Millions)**

	FY 2008	FY 2009	FY 2010
(U) Spiral develop systems architecture, systems engineering, and integration of initiatives into a cohesive system of systems process	6.654	3.386	3.250
(U) Plan, design, coordinate, assess and report the JEFX experiments, provide expertise to support initiative selection, acquisition, program management, communications and systems planning	5.916	3.341	4.125
(U) Develop initiatives to introduce new technologies and operational capabilities into the Aerospace Expeditionary Force (AEF) Concept of Operations (CONOPS)	6.350	3.064	3.200
(U) Implement architectural configuration, conduct M&S, install and the test the communications infrastructure and execute the experiment	12.748	1.832	3.500
(U) Transition successful JEFX assessed and CSAF approved warfighting capabilities for fielding into an integrated C2ISR baseline	0.000	4.999	0.750
(U) Total Cost	31.668	16.622	14.825

Exhibit R-2a, RDT&E Project Justification

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207449F C2 Constellation

PROJECT NUMBER AND TITLE

5140 Joint Expeditionary Force Experiments

(U) **C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	

(U) Not applicable

(U) **D. Acquisition Strategy**

JEFX supports evolutionary acquisition of multiple programs by providing a venue to experiment new and emerging technologies to be integrated into other systems-of-record.

UNCLASSIFIED

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>				PE NUMBER AND TITLE <b>0207449F C2 Constellation</b>				PROJECT NUMBER AND TITLE <b>5140 Joint Expeditionary Force Experiments</b>				
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> Experimentation	FFRDC	MITRE, ESC Hanscom AFB, MA	6.566	3.685	Nov-07	1.643	Nov-08	1.643	Nov-09	Continuing	TBD	TBD
Experimentation	C/IDIQ	Sverdrup, ESC Hanscom AFB	1.324	1.324	Mar-08	0.662	Jan-09	0.662	Jan-10	Continuing	TBD	TBD
Experimentation	C/IDIQ	Quantech, ESC Hanscom AFB, MA	0.712	0.712	Jan-08	0.356	Jan-09	0.356	Jan-10	Continuing	TBD	TBD
Experimentation	C/CPAF	Lockheed Martin, ESC Hanscom AFB, MA	6.600	1.329	Nov-07	0.625	Nov-08	0.625	Nov-09	Continuing	TBD	TBD
Experimentation	Various	ESC, Hanscom AFB, MA	0.630	0.450	Oct-07	0.100	Oct-08	0.114	Oct-09	Continuing	TBD	TBD
Experimentation	Various	GCIC, Langley AFB, VA	5.802	5.802	Nov-07	5.802	Nov-08	5.577	Nov-09	Continuing	TBD	TBD
Experimentation	MIPR	L-3 Com, 505 CCW	3.100	1.130	Dec-07					Continuing	TBD	TBD
Experimentation	C/GSA	Sverdrup, 505 CCW	0.175	0.180	Oct-07					Continuing	TBD	TBD
Experimentation	C/GSA	Northrop Grumman	0.675	0.250	Oct-07					Continuing	TBD	TBD
Experimentation	Various	505 CCW	8.025	1.831	Jan-08	1.831	Jan-09	1.700	Nov-09	Continuing	TBD	TBD
Experimentation	MIPR	Various	25.056	14.975	Nov-07	5.603	Nov-08	4.148	Nov-09	Continuing	TBD	TBD
Subtotal Product Development Remarks:			58.665	31.668		16.622		14.825		Continuing	TBD	TBD
(U) <u>Test &amp; Evaluation</u>  Subtotal Test & Evaluation Remarks:			0.000	0.000		0.000		0.000		Continuing	TBD	TBD
(U) Total Cost			58.665	31.668		16.622		14.825		Continuing	TBD	TBD

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Project 5140

Exhibit R-3 (PE 0207449F)

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

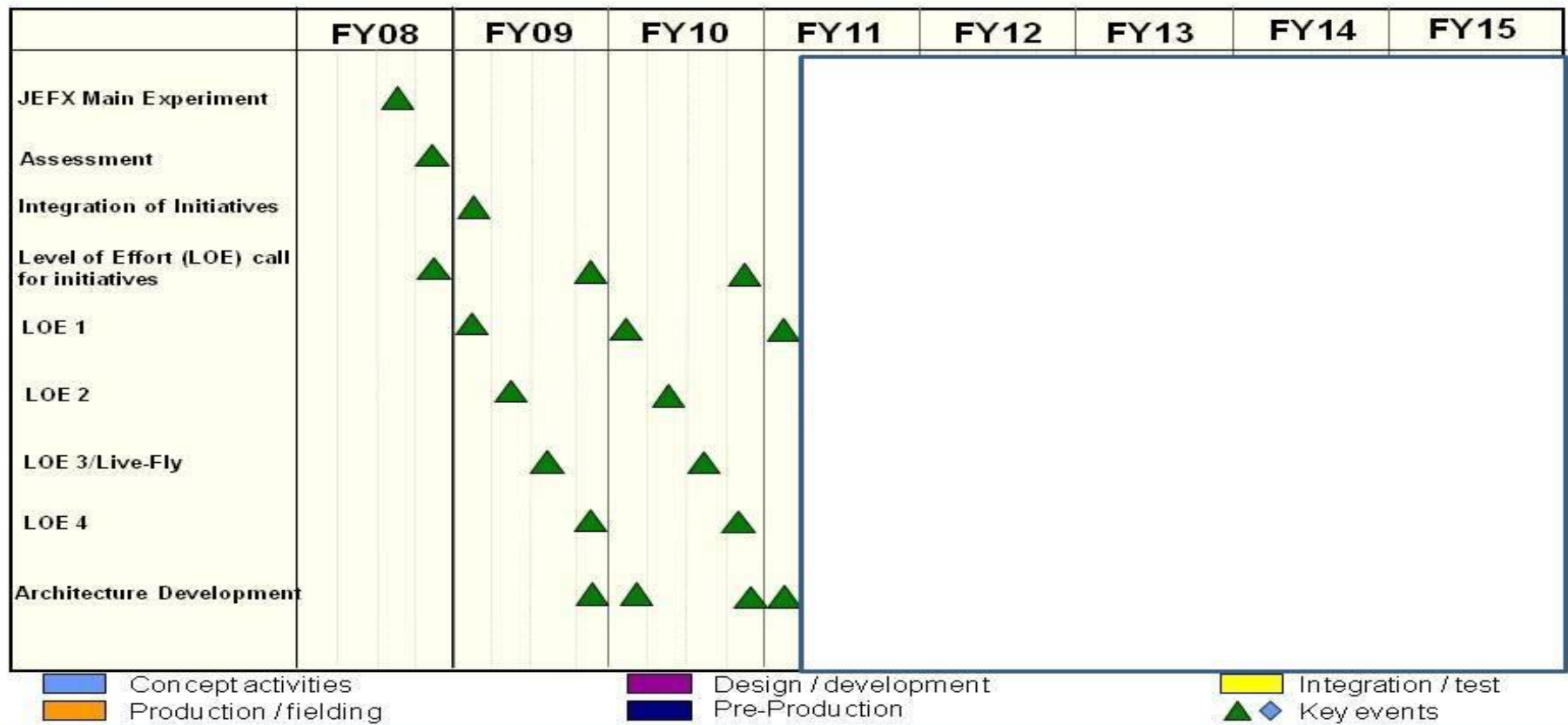
BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0207449F C2 Constellation

PROJECT NUMBER AND TITLE  
5140 Joint Expeditionary Force Experiments



# JEFX Schedule



PB10 R-Docs

Depicted by in stallation/production flow

1

Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207449F C2 Constellation

PROJECT NUMBER AND TITLE

5140 Joint Expeditionary Force Experiments

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) <b>Schedule Profile</b>			
(U) JEFX Main Experiment	3Q		
(U) Assessment	4Q		
(U) Integration of Initiatives		1Q	
(U) LOE Call for Initiatives	4Q	4Q	4Q
(U) Limited Objective Experiment 1 (LOE 1)		1Q	1Q
(U) LOE 2		2Q	2Q
(U) LOE 3/Live Fly		3Q	3Q
(U) LOE 4		4Q	4Q
(U) Architecture Development		4Q	1Q

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>May 2009</b>
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BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0207581F JOINT STARS</b>
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	337.563	81.025	140.670	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
0003 JSTARS	337.563	81.025	140.670	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

**(U) A. Mission Description and Budget Item Justification**

The Joint Surveillance Target Attack Radar System (Joint STARS) program produces the world's premier airborne ground surveillance platform, meeting joint combat capability requirements. The 707-based E-8C Joint STARS aircraft provides all-weather radar-derived surveillance and targeting information on moving and stationary ground targets, slowly moving rotary and fixed wing aircraft, and rotating antennas. Joint STARS provides target information for matching direct attack aircraft, standoff weapons, and ground-based attack assets against selected targets, and can be cued by other intelligence, surveillance, and reconnaissance (ISR) and target acquisition systems. This capability enables air and ground commanders to effectively make and execute battle decisions, and helps achieve predictive battlespace awareness. Activities also include studies and analyses to support both current program planning and execution and future program planning.

This program element enhances the warfighter's ability to achieve the joint vision of combat operations. It develops advanced battle management aids and information fusion technologies to enable rapid decisions in tracking and killing time-critical targets. Concept exploration, program definition/risk reduction efforts, and studies support continuous improvements in Command/Control and ISR (C2ISR), Network Centric Operations capabilities, and interoperability with Joint Service, Allied, and Coalition systems. These efforts include, but are not limited to: Re-Engining; Radar Modernization; interoperability with manned and unmanned platforms; space data links; advanced Battle-Management Command and Control (BMC2) concepts; Single Channel Ground and Airborne Radio System (SINCGARS) voice and data communication; Intelligence, Surveillance, and Reconnaissance (ISR) Constellation; Air Moving Target Indicator (AMTI); Ground Moving Target Indicator (GMTI); Advanced Radar Modes (ARM); Aided Target Recognition (ATR); Synthetic Aperture Radar (SAR)/Enhanced Synthetic Aperture Radar (ESAR); Network Centric Collaborative Targeting (NCCT); Beyond Line of Sight (BLOS) networking; Enhanced Land/Maritime Mode (ELMM). In addition, Blue Force Tracking and other large airborne platform integration efforts including: weapons guidance capabilities; Self Defense Suite (SDS); radar and aircraft performance improvements. Joint Network Enabled Weapons (JNEW) efforts include participation in the Joint Surface Warfare (JSuW) Joint Capability Technology Demonstration (JCTD) and System Design and Development (SDD) for Network Enabled Weapons (NEW) which includes but is not limited to Joint Air to Surface Standoff Missile-Air Surface Warfare (JASSM-ASuW). All of these efforts rely on the test infrastructure provided by the Joint STARS Test Support (JETS) program. JETS includes a dedicated test aircraft, laboratories, and support facilities used by the Joint STARS Test Force (JTF) to conduct RDT&E activities. Training and support systems development efforts include, but are not limited to: Weapon Systems Trainer (WST); Navigator Training System (NTS); and Mission Crew Trainers to include a Mission Maintenance Trainer (MMT), Prime Mission Equipment- Maintenance Training Device (PME-MTD) and the Mission System Trainer (MST). Also included in this program element are programs to address Diminishing Manufacturing Sources (DMS), to include but not limited to Prime Mission Equipment (PME) DMS, Radar DMS, and Avionics DMS which includes but is not limited to Communications, Navigation, Surveillance and Air Traffic Management (CNS/ATM) upgrades, Control and Display Unit (CDU) -800Y Replacement, Emergency Locator Transmitter (ELT), Flight Data Recorder (FDR), Mode 5 IFF, Embedded GPS Inertial (EGI) with Selective Availability Anti-Spoofing Module (SAASM)/M-Code GPS, Attitude Director Indicator (ADI), Horizontal Situation Indicator (HSI) Attitude Heading

Exhibit R-2, RDT&E Budget Item Justification

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207581F JOINT STARS

Reference System (AHRS), New Flight Management System (FMS), Flight Director, VOR/ILS/Marker Beacon multi-mode receiver (MMR), and digital engine instruments. Communications and Networking Upgrade (CNU), a multi-phased effort, includes but is not limited to Joint Tactical Radio System (JTRS), Integrated Broadcast Services (IBS), the Family of Advanced Beyond Line of Sight Terminals (FAB-T), wideband line of sight and beyond line of sight upgrades, Advanced Tactical Data Links integration, Airborne Networking, and Network Centric operation enhancements. The Joint STARS program will coordinate with and participate in projects developing international standards (including NATO standards) to ensure joint, allied, and coalition interoperability such as Attack Support Upgrade (ASU) Link 16 enhancements which evolve JSTARS into a controlling unit with full battle management capabilities.

Re-Engining - Provides the JSTARS E-8 aircraft additional range and time on station, improved fuel economy, time to climb and reliability, and the potential for additional power generation for future systems. Includes non-recurring engineering, flight test, MIL-STD qualification, and flight data analysis.

The result is greater mission capability, higher mission reliability, and maximum weapon system availability in a Joint Net Centric environment.

This program is in Budget Activity 7, Operational Systems Development, due to efforts supporting a post-Milestone C operational weapon system.

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	337.563	81.025	134.692
(U) Current PBR/President's Budget	337.563	81.025	140.670
(U) Total Adjustments	0.000	0.000	
(U) Congressional Program Reductions		0.000	
Congressional Rescissions		0.000	
Congressional Increases		0.000	
Reprogrammings			
SBIR/STTR Transfer			

(U) **Significant Program Changes:**

FY 2010 Funding Total includes \$ 5.978M in increased funding due to reprogramming funds via ZBT to Re-Engining.

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

May 2009

BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE		
<b>07 Operational System Development</b>				<b>0207581F JOINT STARS</b>				<b>0003 JSTARS</b>		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
0003 JSTARS	337.563	81.025	140.670	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

The Joint Surveillance Target Attack Radar System (Joint STARS) program produces the world's premier airborne ground surveillance platform, meeting joint combat capability requirements. The 707-based E-8C Joint STARS aircraft provides all-weather radar-derived surveillance and targeting information on moving and stationary ground targets, slowly moving rotary and fixed wing aircraft, and rotating antennas. Joint STARS provides target information for matching direct attack aircraft, standoff weapons, and ground-based attack assets against selected targets, and can be cued by other intelligence, surveillance, and reconnaissance (ISR) and target acquisition systems. This capability enables air and ground commanders to effectively make and execute battle decisions, and helps achieve predictive battlespace awareness. Activities also include studies and analyses to support both current program planning and execution and future program planning.

This program element enhances the warfighter's ability to achieve the joint vision of combat operations. It develops advanced battle management aids and information fusion technologies to enable rapid decisions in tracking and killing time-critical targets. Concept exploration, program definition/risk reduction efforts, and studies support continuous improvements in Command/Control and ISR (C2ISR), Network Centric Operations capabilities, and interoperability with Joint Service, Allied, and Coalition systems. These efforts include, but are not limited to: Re-Engining; Radar Modernization; interoperability with manned and unmanned platforms; space data links; advanced Battle-Management Command and Control (BMC2) concepts; Single Channel Ground and Airborne Radio System (SINCGARS) voice and data communication; Intelligence, Surveillance, and Reconnaissance (ISR) Constellation; Air Moving Target Indicator (AMTI); Ground Moving Target Indicator (GMTI); Advanced Radar Modes (ARM); Aided Target Recognition (ATR); Synthetic Aperture Radar (SAR)/Enhanced Synthetic Aperture Radar (ESAR); Network Centric Collaborative Targeting (NCCT); Beyond Line of Sight (BLOS) networking; Enhanced Land/Maritime Mode (ELMM). In addition, Blue Force Tracking and other large airborne platform integration efforts including: weapons guidance capabilities; Self Defense Suite (SDS); radar and aircraft performance improvements. Joint Network Enabled Weapons (JNEW) efforts include participation in the Joint Surface Warfare (JSuW) Joint Capability Technology Demonstration (JCTD) and System Design and Development (SDD) for Network Enabled Weapons (NEW) which includes but is not limited to Joint Air to Surface Standoff Missile-Air Surface Warfare (JASSM-ASuW). All of these efforts rely on the test infrastructure provided by the Joint STARS Test Support (JETS) program. JETS includes a dedicated test aircraft, laboratories, and support facilities used by the Joint STARS Test Force (JTF) to conduct RDT&E activities. Training and support systems development efforts include, but are not limited to: Weapon Systems Trainer (WST); Navigator Training System (NTS); and Mission Crew Trainers to include a Mission Maintenance Trainer (MMT), Prime Mission Equipment- Maintenance Training Device (PME-MTD) and the Mission System Trainer (MST). Also included in this program element are programs to address Diminishing Manufacturing Sources (DMS), to include but not limited to Prime Mission Equipment (PME) DMS, Radar DMS, and Avionics DMS which includes but is not limited to Communications, Navigation, Surveillance and Air Traffic Management (CNS/ATM) upgrades, Control and Display Unit (CDU) -800Y Replacement, Emergency Locator Transmitter (ELT), Flight Data Recorder (FDR), Mode 5 IFF, Embedded GPS Inertial (EGI) with Selective Availability Anti-Spoofing Module (SAASM)/M-Code GPS, Attitude Director Indicator (ADI), Horizontal Situation Indicator (HSI) Attitude Heading Reference System (AHRS), New Flight Management System (FMS), Flight Director, VOR/ILS/Marker Beacon multi-mode receiver (MMR), and digital engine instruments. Communications and Networking Upgrade (CNU), a multi-phased effort, includes but is not limited to Joint Tactical Radio System (JTRS), Integrated

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0207581F JOINT STARS</b>	<b>PROJECT NUMBER AND TITLE</b> <b>0003 JSTARS</b>
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Broadcast Services (IBS), the Family of Advanced Beyond Line of Sight Terminals (FAB-T), wideband line of sight and beyond line of sight upgrades, Advanced Tactical Data Links integration, Airborne Networking, and Network Centric operation enhancements. The Joint STARS program will coordinate with and participate in projects developing international standards (including NATO standards) to ensure joint, allied, and coalition interoperability such as Attack Support Upgrade (ASU) Link 16 enhancements which evolve JSTARS into a controlling unit with full battle management capabilities.

Re-Engining - Provides the JSTARS E-8 aircraft additional range and time on station, improved fuel economy, time to climb and reliability, and the potential for additional power generation for future systems. Includes non-recurring engineering, flight test, MIL-STD qualification, and flight data analysis.

The result is greater mission capability, higher mission reliability, and maximum weapon system availability in a Joint Net Centric environment.

This program is in Budget Activity 7, Operational Systems Development, due to efforts supporting a post-Milestone C operational weapon system.

<b>(U) B. Accomplishments/Planned Program (\$ in Millions)</b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Spiral Development, Kill Chain and Integration/Analysis, Interoperability (including but not limited to Weapons Guidance, Wide Area Tracker, Aided Target Recognition, NCCT, BLOS, ARM, Find-Fix-Target-Track-Engage-Assess (F2T2EA), International, Inverse Synthetic Aperture Radar (ISAR), JASSM Weapon Data Link (WDL), JSuW JCTD and SDD, SINCGARS, etc.)	10.354	2.739	8.262
(U) PME DMS	56.684	0.556	58.910
(U) Communications & Network Upgrade (CNU) (Joint Tactical Radio System (JTRS)	5.217	13.423	6.067
(U) Enhanced Land/Maritime Mode (ELMM)	14.415	0.025	
(U) Communication, Navigation, and Surveillance/Air Traffic Management (CNS/ATM) formerly Global Air Traffic Mgmt (GATM) (i.e.; TCAS, 8.33kHz VHF, etc)/ Avionics DMS Spiral I	5.431	3.589	15.641
(U) Test and Infrastructure Effort (including but not limited to Joint Test Force, JSTARS Extended Test Support contract, Information Assurance, range support, PL-2 security, support of T-3 test aircraft, test labs, etc.)	29.774	36.641	35.840
(U) Re-Engining	120.729	4.659	15.950
(U) Joint STARS Radar Modernization (JSRM)	78.686	19.319	
(U) Senior Year Electro-optical Reconnaissance System (SYERS) Demonstration	16.273	0.074	
(U) Total Cost	337.563	81.025	140.670

<b>(U) C. Other Program Funding Summary (\$ in Millions)</b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Modifications, BP11 (PE 0207581F)	94.269	30.571	225.973						Continuing	TBD
(U) Spares, BP16 (PE 0207581F)	1.232	8.910	20.903						Continuing	TBD

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207581F JOINT STARS

PROJECT NUMBER AND TITLE

0003 JSTARS

(U) D. Acquisition Strategy

Most major programs will be sole source to Northrop Grumman Syst Corp in Melbourne Florida.

Trainer programs are sole source to Rockwell Collins in Sterling Virginia.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>07 Operational System Development</b>				<b>0207581F JOINT STARS</b>					<b>0003 JSTARS</b>			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2008 Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date	Cost to Complete	Total Cost	Target Value of Contract
(U) <u>Product Development</u>												
CNS/ATM (GATM)/8.33 k Hz VHF Radio	Various	NGC, Melb,FI	145.998	5.431	Oct-07	3.589	May-09				155.018	TBD
Spiral Development	Various	NGC, Melb,FI	93.215	10.354	Apr-08	2.739	Mar-09	8.262	Nov-09		114.570	TBD
Communications & Network Upgrade (CNU)(Joint Tactical Radio System (JTRS))	Various	NGC, Melb,FI		5.217	Feb-08	13.423	May-09	6.067	Nov-09		24.707	TBD
ELMM/ARM	CPFF	NGC,Melb,FI	75.487	14.415	Oct-07	0.025	Nov-08				89.927	TBD
PME DMS	TBD	NGC,Melb,FI		56.684	Jul-09	0.556	Mar-09	58.910	Nov-09		116.150	TBD
SYERS Demonstration/EO-IR Adjunct	CPFF	NGC,Melb,FI/ Textron		16.273	Jul-08	0.074	Mar-09				16.347	TBD
Joint STARS Radar Modernization (JSRM)	TBD	NGC,Melb,FI		78.686	Nov-08	19.319	Apr-09				98.005	
Avionics DMS Spiral I	TBD	NGC,Melb,FI						15.641	Mar-10		15.641	
Subtotal Product Development			314.700	187.060		39.725		88.880		0.000	630.365	TBD
Remarks:	Where Various Contract Method & Types take place, earliest date funds will be obligated is noted.											
(U) <u>Support</u>												
SPO Ops Support	Various	HAFB, MA		0.000							0.000	TBD
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	TBD
Remarks:	Where Various Contract Method & Types take place, earliest date funds will be obligated is noted.											
(U) <u>Test &amp; Evaluation</u>												
E-8C JSTARS Ext. Test Spt (JETS)	Various	NGC,Melb,FI		22.285	Nov-07	29.455	Oct-08	27.112	Nov-09		78.852	TBD
JTF Test Ops/Support	Various	JTF, Melb,FI		7.489	Oct-07	7.186	Nov-08	8.728	Nov-09		23.403	TBD
Subtotal Test & Evaluation			0.000	29.774		36.641		35.840		0.000	102.255	TBD
Remarks:	Where Various Contract Method & Types take place, earliest date funds will be obligated is noted.											
(U) <u>Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Re-Engining</u>												
Re-Engining	Various	NGC,Melb,FI	46.039	120.729	May-08	4.659	May-09	15.950	Nov-09		187.377	TBD
Subtotal Re-Engining			46.039	120.729		4.659		15.950		0.000	187.377	TBD
Remarks:	Where Various Contract Method & Types take place, earliest date funds will be obligated is noted.											
(U) Total Cost			360.739	337.563		81.025		140.670		0.000	919.997	TBD

Exhibit R-4, RDT&E Schedule Profile

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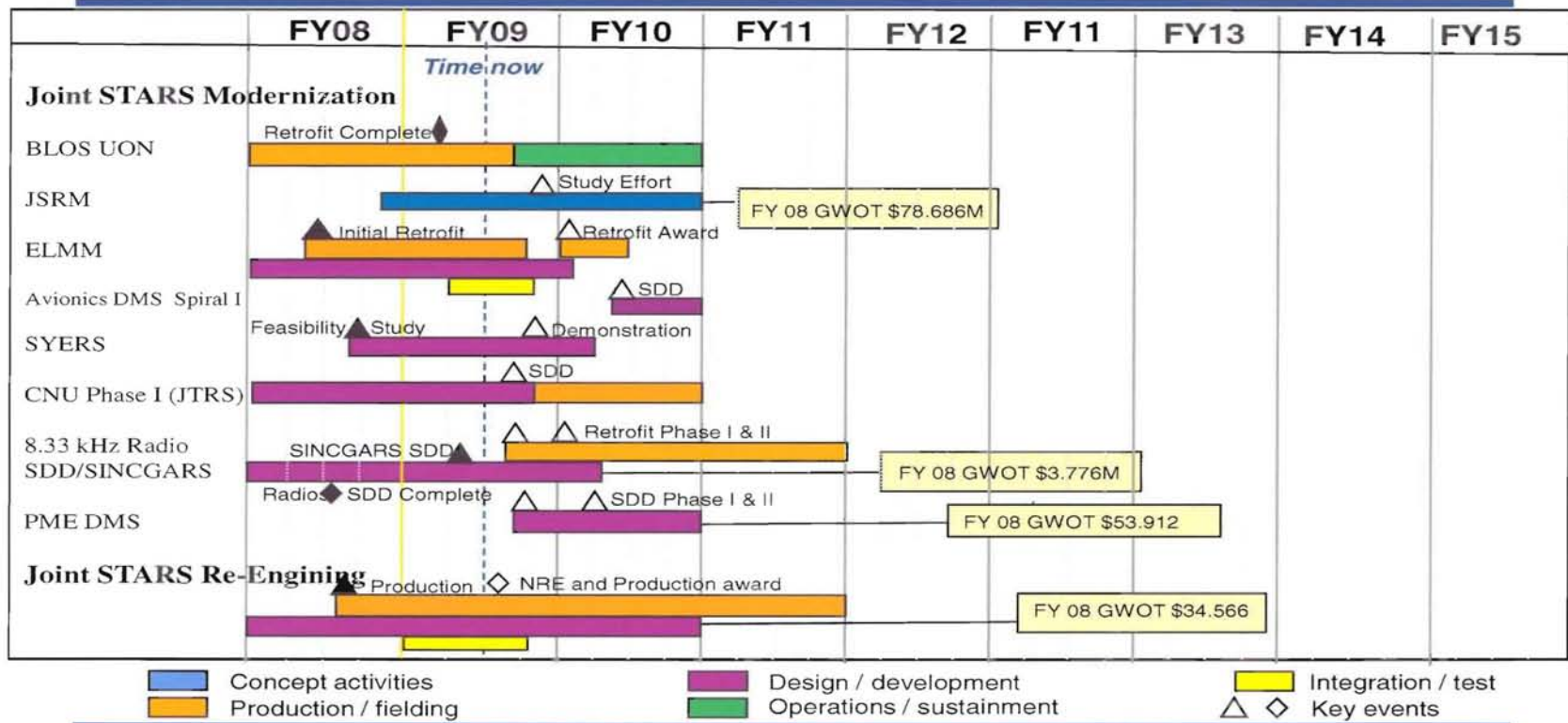
BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0207581F JOINT STARS

PROJECT NUMBER AND TITLE  
0003 JSTARS



# Joint STARS Schedule



FY10 Staffer Brief

Exhibit R-4a, RDT&E Schedule Detail

DATE

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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0207581F JOINT STARS	PROJECT NUMBER AND TITLE 0003 JSTARS		
		<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) <b>Schedule Profile</b>				
(U) Re-Engining Production Award		3Q		
(U) Re-Engining Phase I NRE and Production Award			3Q	
(U) ELMM Initial Retrofit Contract Award		2Q		
(U) ELMM Retrofit Contract Award				1Q
(U) SYERS Feasibility Study for Demonstration		4Q		
(U) SINCGARS SDD Award			2Q	
(U) CNU Phase I SDD Award			3Q	
(U) SYERS Demonstration Award			4Q	
(U) 8.33 kHz Radio Production Award			3Q	
(U) JSRM Risk Reduction Study Award			4Q	
(U) PME DMS SDD Contract Award			4Q	
(U) Avionics DMS Spiral I				2Q



**UNCLASSIFIED**

PE NUMBER: 0207590F  
 PE TITLE: Seek Eagle

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0207590F Seek Eagle</b>
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	22.663	21.586	22.071	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
4037 SEEK EAGLE Certifications	22.663	21.586	22.071	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

**(U) A. Mission Description and Budget Item Justification**

The Air Force operates a variety of combat aircraft that carry numerous and varied stores (munitions, missiles, fuel tanks, targeting pods, range pods, electronic countermeasures pods, etc.). Stores are carried in countless different loading combinations determined by operational and training scenarios, missions, tactics, and weapon development programs. Aircraft stores combinations change as operational plans and tactics change and as new stores are developed and fielded. Before operational, training or test use, the Air Force must certify these configurations for safe loading, carriage, and separation (jettison and normal release); as well as verify ballistics accuracy under the user-certified carriage and employment parameters. The Air Force SEEK EAGLE program completes certification recommendations and recommended flight clearances through any combination of engineering analysis, wind tunnel testing, modeling and simulation, and ground/flight test and evaluation. The program recommends about 1000 aircraft/store combinations for flight each year with analysis and testing, in support of certification, requiring from weeks to years depending on the complexity. Integrated solutions for combat aircrew weapon delivery planning problems are developed and provided to combat forces via Combat Weapons Delivery Software (CWDS). The program is also responsible for inserting new and emerging technologies into the SEEK EAGLE process as well as providing resources for the sustainment of a viable Air Force aircraft/store certification capability.

SEEK EAGLE funds are currently budgeted to support certification testing and analysis for new weapons programs (and all new variants) including, but not limited to: Small Diameter Bomb (SDB) I/II, Laser Joint Direct Attack Munitions (LJDAM), Joint Air-to-Surface Standoff Missile (JASSM), AIM-9X, AIM-120 (Advanced Medium Range Air-to-Air Missile, AMRAAM), Miniature Air-Launched Decoy (MALD), BRU-57 (Smart Bomb Rack), low collateral damage warheads for Precision Guided Munitions (PGMs), Sniper Targeting Pod with video data link, LITENING Targeting Pod with video data link, GBU-51, GBU-54, Airborne Instrumentation System (AIS) pods, and many other inventory stores on inventory aircraft. SEEK EAGLE funds are also budgeted to continue developing F-22 engineering models/data and to provide follow-on technical support from Lockheed Martin. SEEK EAGLE funds are used to obtain non-inventory stores for post-integration certification requirements.

The RDT&E Budget Activity is 07, Operational System Development, because the program supports fielded systems.

Exhibit R-2, RDT&E Budget Item Justification

DATE

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207590F Seek Eagle

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	22.823	21.645	24.521
(U) Current PBR/President's Budget	22.663	21.586	22.071
(U) Total Adjustments	-0.160	-0.059	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.059	
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer	-0.160		
(U) <u>Significant Program Changes:</u>			
FY10 \$2.450M reduction due to higher priorities.			

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

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BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE		
<b>07 Operational System Development</b>				<b>0207590F Seek Eagle</b>				<b>4037 SEEK EAGLE Certifications</b>		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
4037 SEEK EAGLE Certifications	22.663	21.586	22.071	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

The Air Force operates a variety of combat aircraft that carry numerous and varied stores (munitions, missiles, fuel tanks, targeting pods, range pods, electronic countermeasures pods, etc.). Stores are carried in countless different loading combinations determined by operational and training scenarios, missions, tactics, and weapon development programs. Aircraft stores combinations change as operational plans and tactics change and as new stores are developed and fielded. Before operational, training or test use, the Air Force must certify these configurations for safe loading, carriage, and separation (jettison and normal release); as well as verify ballistics accuracy under the user-certified carriage and employment parameters. The Air Force SEEK EAGLE program completes certification recommendations and recommended flight clearances through any combination of engineering analysis, wind tunnel testing, modeling and simulation, and ground/flight test and evaluation. The program recommends about 1000 aircraft/store combinations for flight each year with analysis and testing, in support of certification, requiring from weeks to years depending on the complexity. Integrated solutions for combat aircrew weapon delivery planning problems are developed and provided to combat forces via Combat Weapons Delivery Software (CWDS). The program is also responsible for inserting new and emerging technologies into the SEEK EAGLE process as well as providing resources for the sustainment of a viable Air Force aircraft/store certification capability.

SEEK EAGLE funds are currently budgeted to support certification testing and analysis for new weapons programs (and all new variants) including, but not limited to: Small Diameter Bomb (SDB) I/II, Laser Joint Direct Attack Munitions (LJDAM), Joint Air-to-Surface Standoff Missile (JASSM), AIM-9X, AIM-120 (Advanced Medium Range Air-to-Air Missile, AMRAAM), Miniature Air-Launched Decoy (MALD), BRU-57 (Smart Bomb Rack), low collateral damage warheads for Precision Guided Munitions (PGMs), Sniper Targeting Pod with video data link, LITENING Targeting Pod with video data link, GBU-51, GBU-54, Airborne Instrumentation System (AIS) pods, and many other inventory stores on inventory aircraft. SEEK EAGLE funds are also budgeted to continue developing F-22 engineering models/data and to provide follow-on technical support from Lockheed Martin. SEEK EAGLE funds are used to obtain non-inventory stores for post-integration certification requirements.

The RDT&E Budget Activity is 07, Operational System Development, because the program supports fielded systems.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Continue development of F-22A data and engineering models to use for follow-on F-22A weapons certification and follow-on technical support from the contractor.	3.500	1.800	4.200
(U) Develop mission planning software including CWDS	3.300	3.500	3.500
(U) Continue/complete various technology/ process improvement projects such as store separation prediction capabilities using Applied Computational Fluid Dynamics (ACFD).	2.700	2.900	2.900
(U) Conduct various aircraft-store certifications on USAF fighter, bomber, and USA aircraft.	13.163	13.386	11.471
(U) Total Cost	22.663	21.586	22.071

Exhibit R-2a, RDT&E Project Justification

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207590F Seek Eagle

PROJECT NUMBER AND TITLE

4037 SEEK EAGLE Certifications

(U) **C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	

(U) None

(U) **D. Acquisition Strategy**

The SEEK EAGLE program does not execute in accordance with established acquisition program milestones. For initial aircraft-weapons integration, the aircraft or weapon program office is responsible for budgeting and providing the test assets to AFSEO for the store certification requirements. For post integration certification requirements, AFSEO funds are used to obtain the non-inventory test assets.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>07 Operational System Development</b>				<b>0207590F Seek Eagle</b>					<b>4037 SEEK EAGLE Certifications</b>			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
Lockheed Martin	C/CPFF	Marietta, GA	5.200	1.919		1.500		1.500		Continuing	TBD	
Subtotal Product Development			5.200	1.919		1.500		1.500		Continuing	TBD	0.000
Remarks:												
(U) <u>Support</u>												
Mission Support	PO/REO	Eglin AFB, FL	16.054	1.956		3.500		3.500		Continuing	TBD	
Subtotal Support			16.054	1.956		3.500		3.500		Continuing	TBD	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
46th Test Wing	PO/REO	Eglin AFB, FL	175.957	12.632		12.950		13.417		Continuing	TBD	
AEDC	PO/REO	Arnold Engineering Dev Center TN	20.541	0.100		0.691		1.000		Continuing	TBD	
Various	PO/REO/M IPR	Multiple other for T&E Support	83.320	6.056		2.945		2.654		Continuing	TBD	
Subtotal Test & Evaluation			279.818	18.788		16.586		17.071		Continuing	TBD	0.000
Remarks:												
(U) <u>Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			301.072	22.663		21.586		22.071		Continuing	TBD	0.000

## Exhibit R-4, RDT&amp;E Schedule Profile

DATE

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207590F Seek Eagle

PROJECT NUMBER AND TITLE

4037 SEEK EAGLE Certifications

**The SEEK EAGLE program does not execute in accordance with established acquisition program milestones. Each aircraft/store configuration requested by the user goes through the SEEK EAGLE process by the designated user priority.**

Exhibit R-4a, RDT&E Schedule Detail

DATE

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BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0207590F Seek Eagle</b>	PROJECT NUMBER AND TITLE <b>4037 SEEK EAGLE Certifications</b>
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(U) <u>Schedule Profile</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) JDAM	1-4Q	1-4Q	1-4Q
(U) JASSM	1-4Q	1-4Q	1-4Q
(U) SDB	1-4Q	1-4Q	1-4Q
(U) AIM-9X	1-4Q	1-4Q	1-4Q
(U) AIM-120	1-4Q	1-4Q	1-4Q
(U) WCMD	1-4Q	1-4Q	1-4Q
(U) MALD	1-4Q	1-4Q	1-4Q
(U) SNIPER VDL	1-4Q	1-4Q	1-4Q
(U) LITENING GEN 4	1-4Q	1-4Q	1-4Q

Note: The SEEK EAGLE program does not execute in accordance with established acquisition program milestones. Each aircraft-store configuration requested by the user goes through the SEEK EAGLE process by the designated user priority.

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0207601F USAF Modeling and Simulation</b>
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	20.739	28.866	27.245	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
4567 M&S Foundations	5.683	6.273	6.269	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
4991 Accelerated Acquisitions	4.641	5.093	5.146	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5135 Warfighter Readiness	10.415	17.500	15.830	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

**(U) A. Mission Description and Budget Item Justification**

United States Air Force (USAF) Modeling & Simulation (M&S) projects (Modeling and Simulation Foundations thrust, Accelerated Acquisition thrust, New and Emerging Warfighting Capabilities thrust, and Warfighter Readiness thrust) provide RDT&E funding for corporate M&S training, mission rehearsal, and system development. These thrusts support Department of Defense (DoD) Training Transformation (T2) & acquisition reform initiatives. The USAF M&S Program Element (PE) provides the capability that immerses warfighters in distributed, and/or simulated environments to execute the Global War on Terror (GWOT) during joint mission rehearsal, training, and experimentation.

In support of the DoD T2 initiative, USAF M&S develops and modernizes models and simulations that are the constructive backbone of USAF Distributed Mission Operations (DMO) -- Live, Virtual, Constructive (LVC) environment. DMO enables joint, coalition, and interagency training required to prepare forces for combat by generating the air and space picture for the Joint Force Commander in combat exercises; training over 30,000 personnel per year in exercises (e.g., Ulchi Freedom Guardian, Red & Blue Flags, Unified Endeavor, etc). DMO also provides the current operational environment that allows warfighters to interact with other tactical cockpit simulators as well as the High Demand/Low Density platforms, often unavailable for live training due to real-world operations. USAF M&S is also integral to inter-agency Homeland Defense exercises chartered to train combat units tasked to protect the Homeland, including the National Capital Region (exercise Amalgam Arrow); generates equipment and manpower efficiencies by using simulations which reduce fuel consumption, aircraft wear and tear, and manpower costs.

In support of the DoD drive to improve the effectiveness and efficiency of its enterprise-wide acquisition business processes, the USAF develops and supports enhancements to models, simulations, tools, and the LVC infrastructure to provide for system-of-systems M&S capabilities across the lifecycle, reduce developmental costs, and minimize risks. These capabilities support the acquisition process from concept development through test and evaluation. In addition, the Air Force Modeling & Simulation Governance Structure is being revised to more closely align with the DoD Modeling and Simulation Management Structure and better represent all Air Force Modeling and Simulation stakeholders.

This program is in Budget Activity 7 - Operational System Development because it provides RDT&E funding for major USAF Modeling and Simulation efforts.

Exhibit R-2, RDT&E Budget Item Justification

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207601F USAF Modeling and Simulation

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	22.814	28.981	27.712
(U) Current PBR/President's Budget	20.739	28.866	27.245
(U) Total Adjustments	-2.075	-0.115	
(U) Congressional Program Reductions		-0.036	
Congressional Rescissions		-0.079	
Congressional Increases			
Reprogrammings	-1.439		
SBIR/STTR Transfer	-0.636		

(U) **Significant Program Changes:**

FY10: Changes in President's Budget due to reprogramming to meet higher Air Force priorities.

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>				<b>PE NUMBER AND TITLE</b> <b>0207601F USAF Modeling and Simulation</b>				<b>PROJECT NUMBER AND TITLE</b> <b>4567 M&amp;S Foundations</b>			
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total	
4567 M&S Foundations	5.683	6.273	6.269	0.000	0.000	0.000	0.000	0.000	Continuing	TBD	
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0			

**(U) A. Mission Description and Budget Item Justification**

M&S Foundations (MSF) focuses on integrating foundational capabilities needed to improve the usefulness, productivity, scalability and efficiency of M&S capabilities derived from the Warfighter Readiness (WR) thrust, the Accelerated Acquisitions (AA) thrust, and the New and Emerging Warfighting Capabilities (NEWC) thrust. The efforts supporting the M&S Foundations thrust include both concept exploration and development. Activities also include studies and analysis to support both current program planning and execution and future program planning.

MSF provides tools, standards and interfaces to be used by model developers and users to ensure efficiencies and model reuse. MSF provides the capability to rapidly and efficiently create realistic and accurate synthetic operational battlespaces to support the full spectrum of activities associated with mission preparation and acquisition of warfighting capabilities by providing appropriate authoritative data and component representations. With the capability generated via MSF, users will readily access available repositories of reusable, validated, and integrated synthetic components. Synthetic components include representations of operational battlespace entities (such as friendly and enemy assets) and representations of the natural environment that include the terrain, atmospheric and space weather effects; energy and signal propagation effects. The rapid composition is based on a durable common architecture framework and common standards. MSF capability also supports efficient, cost-effective verification, validation and accreditation activity across the training, test, experimentation, acquisition, planning and analysis communities.

Air Force Director of Weather (AF/A3O-W) is designated as the DoD Air and Space Natural Environment Modeling and Simulation Executive Agent (ASNE MSEA). ASNE MSEA coordinates all aspects of DoD M&S related to representations of the air and space natural environment, ensuring air and space weather is properly represented in joint and service models, simulations, war games, and experiments. The ASNE MSEA part of this project primarily funds the following: Environmental Scenario Generator, Environmental Data Cube Support System, and Space Weather Analysis as required to support joint M&S program offices and activities like Office of the Secretary of Defense (OSD) Program, Analysis, and Evaluation; Air Force Studies and Analyses Agency; Joint Analysis System; Joint National Training Capability; Distributed Mission Operations & Training (DMO/DMT); One Semi-Automated Force; Navy Probability of Raid Annihilation Assessment; Terminal Fury; Unified Engagement; Hazard Prediction and Assessment Capability; and Joint Expeditionary Force Experiment. Primary customers are combatant commanders, service components, and various DoD organizations conducting simulations and exercises involving air, ground, sea, and space assets. ASNE MSEA develops authoritative natural environment scenarios necessary for robust "What-if" mission planning and rehearsal and for realistic training, analysis, and acquisition models and simulations. ASNE MSEA leads the development and execution of the DoD Integrated Natural Environment Authoritative Representation Process (INEARP) Concept of Operations.

This program is in Budget Activity 7 - Operational System Development because it provides RDT&E funding for major USAF Modeling and Simulation efforts.

Exhibit R-2a, RDT&E Project Justification

DATE

May 2009

BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0207601F USAF Modeling and Simulation</b>	PROJECT NUMBER AND TITLE <b>4567 M&amp;S Foundations</b>
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(U) <b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) MSF Concept exploration/model development/model transition	4.828	5.298	5.274
(U) Provide DoD M&S community with tools to search Air & Space Natural Environment scenarios; measure effects on weapon systems and subsystems and distribute tailored reusable databases and products	0.855	0.975	0.995
(U) Total Cost	5.683	6.273	6.269

(U) <b><u>C. Other Program Funding Summary (\$ in Millions)</u></b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	

(U) Not applicable

(U) **D. Acquisition Strategy**

OAS, Kirtland AFB, NM manages the acquisition and model development process for all M&S Foundation activities. All major contracts will be awarded after full and open competition.

UNCLASSIFIED

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>07 Operational System Development</b>				<b>0207601F USAF Modeling and Simulation</b>					<b>4567 M&amp;S Foundations</b>			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2008 Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date	Cost to Complete	Total Cost	Target Value of Contract
(U) <u>Product Development</u> Concept Refinement, Technology, Services, and Tools Support	Various	Office of Aerospace Studies, Kirtland, NM; ASC, Wright Patterson AFB, OH	0.000	4.828	Oct-07	5.298	Oct-08	5.274	Oct-09	Continuing	TBD	TBD
ASNE (Services, Tools, and Environmental support)	Various	Various	1.931	0.855	Oct-07	0.975	Oct-08	0.995	Oct-09	Continuing	TBD	TBD
Subtotal Product Development			1.931	5.683		6.273		6.269		Continuing	TBD	TBD
Remarks:												
(U) <u>Support</u>												
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Subtotal			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			1.931	5.683		6.273		6.269		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE  
May 2009

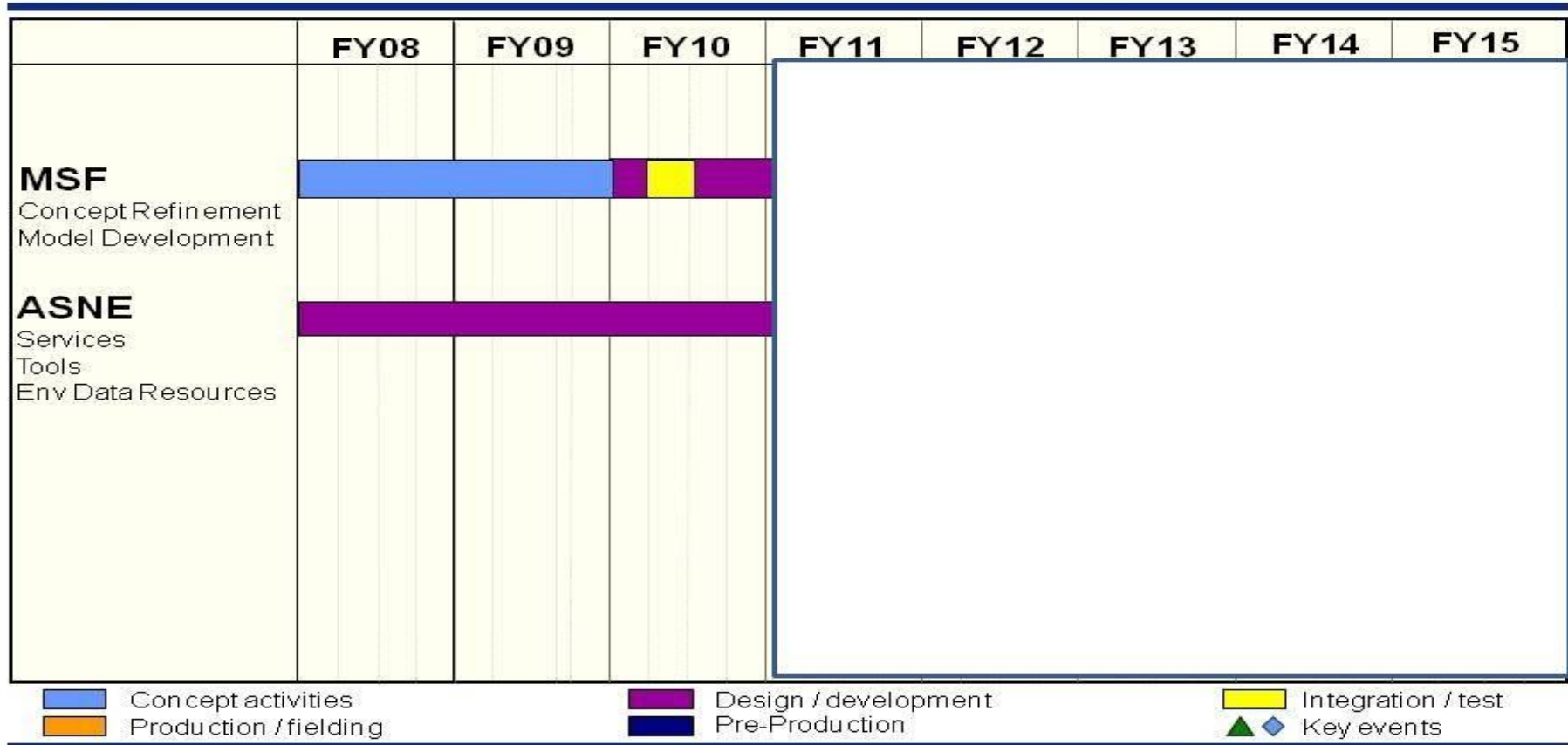
BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0207601F USAF Modeling and Simulation

PROJECT NUMBER AND TITLE  
4567 M&S Foundations



*MSF Schedule*



**PB10 R-Docs**

Depicted by in stallation/production flow

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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>May 2009</b>
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BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0207601F USAF Modeling and Simulation</b>	PROJECT NUMBER AND TITLE <b>4567 M&amp;S Foundations</b>
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<b>(U) <u>Schedule Profile</u></b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) M& Foundations (Dev, T&E, Tools)	1-4Q	1-4Q	1-4Q
(U) ASNE (Services, Tools, and Environmental support)	1-4Q	1-4Q	1-4Q

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>				<b>PE NUMBER AND TITLE</b> <b>0207601F USAF Modeling and Simulation</b>				<b>PROJECT NUMBER AND TITLE</b> <b>4991 Accelerated Acquisitions</b>		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
4991 Accelerated Acquisitions	4.641	5.093	5.146	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

Project 4991, Accelerated Acquisition (AA) focuses on fostering M&S tools, data, and infrastructure to enable high confidence acquisition of capabilities to support the joint warfighter. This includes Live-Virtual-Constructive (LVC) infrastructure, tools and processes supporting LVC events, and models, tools, data, simulations/stimulation to support requirements definition, systems engineering and test activities. Activities also include studies and analysis to support both current program planning and execution and future program planning. These efforts will enable more efficient delivery of effective capabilities to the warfighter while reducing the time and resources required for design, development, test and evaluation, maintainability and sustainment.

A key objective is to improve interoperability of weapon systems and platforms through continuing, rigorous interoperability evaluation in a representative Joint Mission Environment. Additionally, AA activities seek to reduce risk associated with acquisition programs by influencing models, simulations, tools, data and infrastructure linking combat system engineering sites to facilitate concept exploration, development and assessment of systems in a net-centric mission context.

This provides the capability to improve both Service and Joint system performance in a system-of-systems environment. Connectivity established by the infrastructure builds upon existing Service and Joint combat system engineering and test sites, such as C4I hardware in the loop and computer-program-in-the-loop engineering sites (including design activities, software support activities, test & evaluation facilities and training commands). Development includes concept of operations, business rules, and procedures to enable acquisition managers to effectively use LVC capabilities.

These efforts enable accurately represented Command, Control, Communications, Computer, and Intelligence (C4I) networks for capability requirement definition, development, and testing activities to evaluate those systems for interoperability and integration into a joint environment. This will address interoperability issues by providing a means for discovering issues early on. Initiatives support the Homeland Defense Testbed, Command & Control (C2) Constellation program, node additions, and various other activities that use the network infrastructure located around the country.

This project is in Budget Activity 7 - Operational System Development because it enhances operational system developments.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Continue communications architectures and network support	1.484	0.150	0.147
(U) Continue to support LVC events to assist in Air Force requirements definition, development and T&E activities	0.750	0.225	0.221
(U) Develop, enhance and verify models, tools, data, simulations/stimulation environments for systems engineering and test activities	0.707	3.930	4.003
(U) Continue to support Joint Service integration & test	1.700	0.788	0.775
(U) Total Cost	4.641	5.093	5.146



<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> 07 Operational System Development	<b>PE NUMBER AND TITLE</b> 0207601F USAF Modeling and Simulation	<b>PROJECT NUMBER AND TITLE</b> 4991 Accelerated Acquisitions
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(U) **C. Other Program Funding Summary (\$ in Millions)**

<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	

(U) Not applicable

(U) **D. Acquisition Strategy**

SAF/XC provides oversight of the Accelerated Acquisition project. Various Air Force activities develop, verify, and validate models, tools, data and simulations/simulation environments. All major contracts will be awarded after full and open competition.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0207601F USAF Modeling and Simulation</b>	<b>PROJECT NUMBER AND TITLE</b> <b>4991 Accelerated Acquisitions</b>
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(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
Architecture & Links	Various	Various	0.000	1.484	Nov-07	0.150	Nov-08	0.147	Nov-09	Continuing	TBD	TBD
Event Coordination	Various	Various	0.000	0.750	Nov-07	0.225	Nov-08	0.221	Nov-09	Continuing	TBD	TBD
Model, Tool, Data, Simulation Development & Verification	Various	Various	0.000	0.707	Nov-07	3.930	Nov-08	4.003	Nov-09	Continuing	TBD	TBD
Joint Service Integration	Various	Various	0.000	1.700	Nov-07	0.788	Nov-08	0.775	Nov-09	Continuing	TBD	TBD
Subtotal Product Development			0.000	4.641		5.093		5.146		Continuing	TBD	TBD
Remarks:												
(U) Total Cost			0.000	4.641		5.093		5.146		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

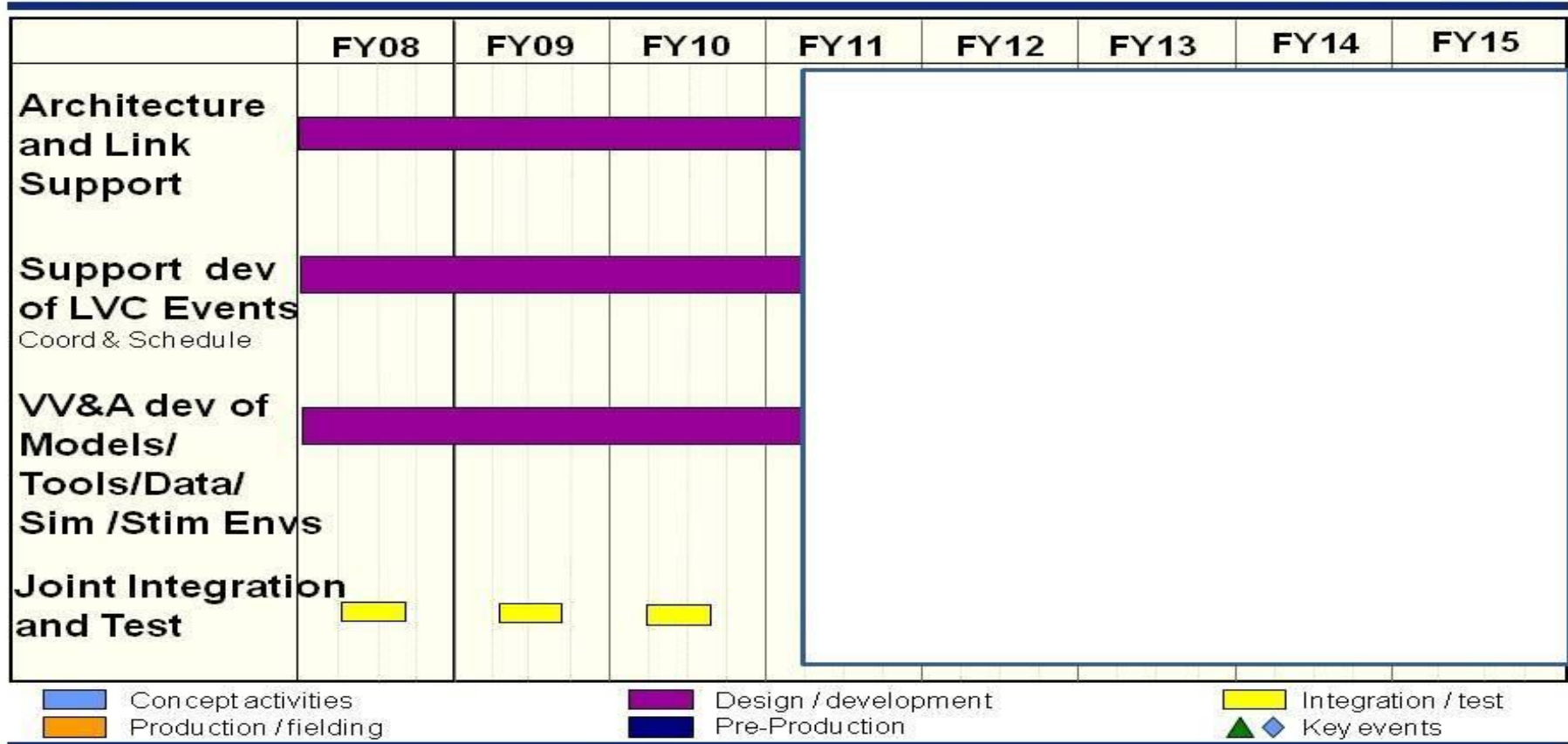
BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0207601F USAF Modeling and Simulation

PROJECT NUMBER AND TITLE  
4991 Accelerated Acquisitions



# Accelerated Acquisition Schedule



**PB10 R-Docs**

Depicted by in stallation/production flow

1

R-1 Line Item No. 159

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Project 4991

Exhibit R-4 (PE 0207601F)

Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207601F USAF Modeling and Simulation

PROJECT NUMBER AND TITLE

4991 Accelerated Acquisitions

(U) <u>Schedule Profile</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Architecture & Links	1-4Q	1-4Q	1-4Q
(U) Event Support of LVC Events	1-4Q	1-4Q	1-4Q
(U) VV&A/model, tool, data, simulation/stimulation environments	1-4Q	1-4Q	1-4Q
(U) Joint Service Integration	2-3Q	2-3Q	2-3Q

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>					PE NUMBER AND TITLE <b>0207601F USAF Modeling and Simulation</b>			PROJECT NUMBER AND TITLE <b>5135 Warfighter Readiness</b>		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5135 Warfighter Readiness	10.415	17.500	15.830	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

Warfighter Readiness (WR) focuses on putting the warfighter in a simulated environment to improve warfighting decision-making, execution, skills and processes. Examples include operational training, mission rehearsal, operational decision-making, mission execution, and concept development. Activities also include studies and analysis to support both current program planning and execution and future program planning.

WR includes the constructive back plane for live and virtual assets to work within for Distributed Mission Operations (DMO). DMO is the Air Force's contribution to the Joint National Training Concept (JNTC). WR's capabilities provided within the environment are the AF's contribution to the Joint Training Confederation's battle staff training environment used to support Combatant Commanders, Joint Task Force, and Component Commander staff readiness training. The capabilities support Joint/Service exercises including, but not limited to: Keen Edge/Yama Sakura, Ulchi Freedom Guardian, Flexible Leader, Blue Flag, Joint Expeditionary Force Experiment, Red/Virtual Flag, Key Resolve, and Talisman Saber.

Other capabilities provide for Intelligence, Surveillance, and Reconnaissance (ISR) training and exercise support by using a virtual ISR system for command and staff level training. The simulation provides commanders, staffs and operators with a common training system for the employment, tasking, exploitation and dissemination of imagery. The environment also provides models simulating electronic combat, electronic warfare, targeting, ISR representation, and intelligence integral to Air and Space Operations Center (AOC) training.

WR also includes the Air Force Modeling & Simulation Training Toolkit (AFMSTT) modernization. AFMSTT provides: the Air Warfare Simulation System (AWSIM) which interfaces to Command, Control, Communications, Computers, and Intelligence (C4I) to Theater Battle Management Core System (TBMCS) and the Graphical Input Aggregate Control (GIAC), the Logistics Simulation (LOGSIM), the Intelligence Management Controller Node (IMCN), and the AWSIM Analysis Tool (AAT). AFMSTT's capabilities require modernization to support Air Force Title X requirements.

This program is in Budget Activity 7 - Operational System Development because it provides RDT&E funding for major USAF Modeling and Simulation efforts.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) AFMSTT Modernization	7.000	11.089	9.101
(U) Distributed Mission Operations Integration (DMOI)	3.415	6.411	6.729
(U) Total Cost	10.415	17.500	15.830

Exhibit R-2a, RDT&E Project Justification

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207601F USAF Modeling and Simulation

PROJECT NUMBER AND TITLE

5135 Warfighter Readiness

(U) **C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	

(U) Not applicable

(U) **D. Acquisition Strategy**

Electronic Systems Center (ESC) at Hanscom AFB, MA manages full and open acquisition and model development process for all WR activities.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0207601F USAF Modeling and Simulation</b>	<b>PROJECT NUMBER AND TITLE</b> <b>5135 Warfighter Readiness</b>
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(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract</u> <u>Method &amp;</u> <u>Type</u>	<u>Performing</u> <u>Activity &amp;</u> <u>Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2008</u> <u>Cost</u>	<u>FY 2008</u> <u>Cost</u>	<u>FY 2008</u> <u>Award</u> <u>Date</u>	<u>FY 2009</u> <u>Cost</u>	<u>FY 2009</u> <u>Award</u> <u>Date</u>	<u>FY 2010</u> <u>Cost</u>	<u>FY 2010</u> <u>Award</u> <u>Date</u>	<u>Cost to</u> <u>Complete</u>	<u>Total Cost</u>	<u>Target Value</u> <u>of Contract</u>
(U) <u>Product Development</u>												
AFMSTT	Various	ESC, Hanscom AFB, MA	23.401	7.000	Dec-07	11.089	Dec-08	9.101	Dec-09	Continuing	TBD	TBD
DMOI	Various	ESC, Hanscom AFB, MA	7.821	3.415	Dec-07	6.411	Dec-08	6.729	Dec-09	Continuing	TBD	TBD
Subtotal Product Development			31.222	10.415		17.500		15.830		Continuing	TBD	TBD
Remarks:												
(U) Total Cost			31.222	10.415		17.500		15.830		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE  
May 2009

BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0207601F USAF Modeling and Simulation

PROJECT NUMBER AND TITLE  
5135 Warfighter Readiness



# Warfighter Readiness Schedule

	FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY15
<b>Air Force M&amp;S Training Toolkit (AFMSTT)</b>								
<b>Distributed Mission Operations-Integration (DMOI)</b>								

- Concept activities
- Production / fielding
- Design / development
- Pre-Production
- Integration / test
- Key events

**PB10 R-Docs**

Depicted by installation/production flow

1



Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207601F USAF Modeling and Simulation

PROJECT NUMBER AND TITLE

5135 Warfighter Readiness

(U) Schedule Profile

FY 2008

FY 2009

FY 2010

(U) AFMSTT Modernization

1-4Q

1-4Q

1-4Q

(U) DMOI Development

1-4Q

1-4Q

1-4Q

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**UNCLASSIFIED**

PE NUMBER: 0207605F  
 PE TITLE: Wargaming and Simulation Centers

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0207605F Wargaming and Simulation Centers</b>
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	6.186	3.860	7.018	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
2888 Distributed Mission Operations Center (DMOC)	6.186	3.860	7.018	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

**(U) A. Mission Description and Budget Item Justification**

The United States Air Force (USAF) Distributed Mission Operations Center (DMOC) is an Air Combat Command, USAF Warfare Center, 505th Command and Control Wing organization. It provides joint interoperability training and testing to geographically separated Live, Virtual, and Constructive (LVC) assets--real-world weapon systems, warfighter-in-the-loop (WITL), and computer-driven simulations. Responsibilities include: development and integration of DMO training and test events, networks, scenarios, and databases in support of service, joint, and coalition warfighters. Activities also include studies and analysis to support both current program planning and execution and future program planning. DMOC is the lead integrator for AF DMO and virtual contributions to the Joint National Training Capability (JNTC).

Additionally, DMOC is the lead agency for Virtual Flag (VF) exercises and the DMO Multi-Level Security (MLS) / Cross-Domain Solution (CDS) testbed.

This program is categorized as Budget Activity (BA) 7 because it provides for development of technology in support of Distributed Mission Operations.

**(U) B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	6.421	3.870	7.138
(U) Current PBR/President's Budget	6.186	3.860	7.018
(U) Total Adjustments	-0.235	-0.010	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.010	
Congressional Increases			
Reprogrammings	-0.055		
SBIR/STTR Transfer	-0.180		

**(U) Significant Program Changes:**

FY10: Changes in President's Budget due to reprogramming to meet higher Air Force priorities.

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>					PE NUMBER AND TITLE <b>0207605F Wargaming and Simulation Centers</b>			PROJECT NUMBER AND TITLE <b>2888 Distributed Mission Operations Center (DMOC)</b>		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
2888 Distributed Mission Operations Center (DMOC)	6.186	3.860	7.018	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

The United States Air Force (USAF) Distributed Mission Operations Center (DMOC) is an Air Combat Command, USAF Warfare Center, 505th Command and Control Wing organization. It provides joint interoperability training and testing to geographically separated Live, Virtual, and Constructive (LVC) assets--real-world weapon systems, warfighter-in-the-loop (WITL), and computer-driven simulations. Responsibilities include: development and integration of DMO training and test events, networks, scenarios, and databases in support of service, joint, and coalition warfighters. Activities also include studies and analysis to support both current program planning and execution and future program planning. DMOC is the lead integrator for AF DMO and virtual contributions to the Joint National Training Capability (JNTC).

Additionally, DMOC is the lead agency for Virtual Flag (VF) exercises and the DMO Multi-Level Security (MLS) / Cross-Domain Solution (CDS) testbed.

This program is categorized as Budget Activity (BA) 7 because it provides for development of technology in support of Distributed Mission Operations.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Continue to maintain core structure to support users conducting RDT&E, mission rehearsal, and concepts of operation development	3.870	2.701	4.528
(U) Continue to support requirements definition, test support, scenario development, analysis, systems engineering support, and Verification, Validation, and Accreditation (VV&A) of core systems	1.393	0.500	1.530
(U) Communications connectivity between DMOC and various other operational and modeling & simulation (M&S) facilities	0.349	0.200	0.428
(U) Program Management Office support	0.574	0.459	0.532
(U) Total Cost	6.186	3.860	7.018

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to Complete</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>		
(U) Not applicable										

**(U) D. Acquisition Strategy**

The Distributed Mission Operations Center supports AF DMO and the JNTC by awarding full and open contracts that manage the acquisition, development, testing, and integration of DMO standards, training, model and simulation, multi-level security testbed, and exercises on Air Force and Joint DMO networks.

UNCLASSIFIED

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0207605F Wargaming and Simulation Centers</b>	<b>PROJECT NUMBER AND TITLE</b> <b>2888 Distributed Mission Operations Center (DMOC)</b>
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(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> Mission Rehearsals/Concept of Operations (Brief/Debrief and Mission Replay tools, Rapid Scenario Generation, Next Generation Threat System Dev, DMO "Flag" events)	CPFF	Lockheed Martin / 705 Combat Training Squadron (CTS), Kirtland AFB, NM	10.232	3.870	Oct-07	2.701	Oct-08	4.528	Oct-09	Continuing	TBD	TBD
Verify, Validate, and Accredite Core Systems (Common Battlespace Architecture, DMO Standards, CDS)	CPFF	Lockheed Martin / 705 CTS, Kirtland AFB, NM	1.366	0.655	Oct-07	0.000	Oct-08	0.694	Oct-09	Continuing	TBD	TBD
Communications Connectivity (DMO Architecture, JNTC Warfighter Capability, LVC and IO Range Integration)	CPFF	Lockheed Martin / 705 CTS, Kirtland AFB, NM	0.419	0.349	Oct-07	0.200	Oct-08	0.408	Oct-09	Continuing	TBD	TBD
Subtotal Product Development Remarks:			12.017	4.874		2.901		5.630		Continuing	TBD	TBD
(U) <u>Support</u> Technical support for systems engineering and exercise operations	CPAF	Scientific Research / 705 CTS, Kirtland AFB, NM	0.000	0.738	Apr-08	0.500	Apr-09	0.428	Apr-10	Continuing	TBD	TBD
Technical support for systems engineering and exercise operations	CPFF	L-3 Communications Government Services / 705 CTS, Kirtland AFB, NM	0.000	0.000		0.000		0.428	Apr-10	Continuing	TBD	TBD
Subtotal Support Remarks:			0.000	0.738		0.500		0.856		Continuing	TBD	TBD
(U) <u>Test &amp; Evaluation</u> Subtotal Test & Evaluation Remarks:			0.000	0.000		0.000		0.000		0.000	0.000	0.000
(U) <u>Management</u> Program Management Office Support	ITSP	705 CTS, Kirtland AFB,	0.640	0.574	Oct-07	0.459	Oct-08	0.532	Oct-09	Continuing	TBD	TBD

R-1 Line Item No. 160

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Project 2888

Exhibit R-3 (PE 0207605F)

UNCLASSIFIED

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY	PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE			
<b>07 Operational System Development</b>	<b>0207605F Wargaming and Simulation Centers</b>				<b>2888 Distributed Mission Operations Center (DMOC)</b>			
Subtotal Management	NM	0.640	0.574	0.459	0.532	Continuing	TBD	TBD
(U) Total Cost		12.657	6.186	3.860	7.018	Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

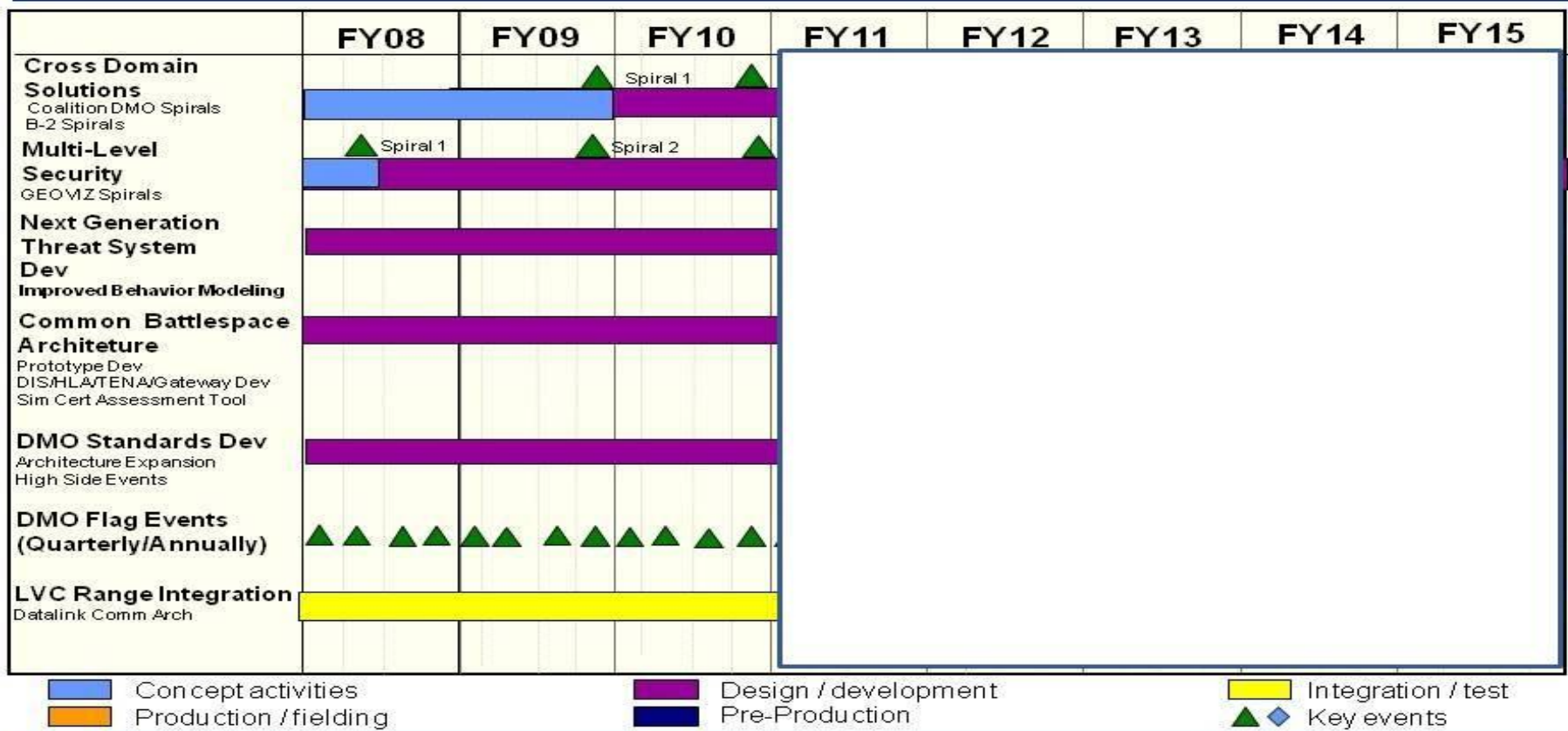
BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0207605F Wargaming and Simulation Centers

PROJECT NUMBER AND TITLE  
2888 Distributed Mission Operations Center (DMOC)



# DMOC Program Schedule



PB10 R-Docs

Depicted by installation/production flow

1

R-1 Line Item No. 160

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Project 2888

Exhibit R-4 (PE 0207605F)

Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0207605F Wargaming and Simulation Centers</b>	PROJECT NUMBER AND TITLE <b>2888 Distributed Mission Operations Center (DMOC)</b>
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(U) <u>Schedule Profile</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Cross-Domain Solutions (CDS)	1-4Q	1-4Q	1-4Q
(U) Multi-Level Security	1-4Q	1-4Q	1-4Q
(U) Next Generation Threat System Dev	1-4Q	1-4Q	1-4Q
(U) Common Battlespace Architecture	1-4Q	1-4Q	1-4Q
(U) DMO Standards Development	1-4Q	1-4Q	1-4Q
(U) DMO "Flag" Events	1-4Q	1-4Q	1-4Q
(U) LVC Range Integration	1-4Q	1-4Q	1-4Q



**UNCLASSIFIED**

PE NUMBER: 0207697F  
 PE TITLE: Distributed Training and Exercises

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0207697F Distributed Training and Exercises</b>
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	6.770	7.118	6.740	0.000	0.000	0.000	0.000	0.000	0.000	0.000
5190 JFCOM Wargaming	6.770	7.118	6.740	0.000	0.000	0.000	0.000	0.000	0.000	0.000

**(U) A. Mission Description and Budget Item Justification**

In September 03 the AF/CV directed the establishment of an 11-person AF Liaison Office (LNO) at USJFCOM with representatives from across the AF to increase participation in joint transformation activities including joint concept development and experimentation and joint Doctrine, Organization, Training, Material, Leadership & Education, Personnel & Facilities (DOTMLPF) recommendations. Air Force A5XS ensures accurate representation of air and space capabilities in joint activities, through modeling and simulation and wargaming activities.

This program is categorized in Budget Activity (BA) 7 because it supports the development efforts of operational systems.

**(U) B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	7.474	7.137	6.856
(U) Current PBR/President's Budget	6.770	7.118	6.740
(U) Total Adjustments	-0.704	-0.019	
(U) Congressional Program Reductions			
Congressional Rescissions			
Congressional Increases			
Reprogrammings	-0.704	-0.019	
SBIR/STTR Transfer			
(U) <u>Significant Program Changes:</u>			

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>					PE NUMBER AND TITLE <b>0207697F Distributed Training and Exercises</b>			PROJECT NUMBER AND TITLE <b>5190 JFCOM Wargaming</b>		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5190 JFCOM Wargaming	6.770	7.118	6.740	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

In September 03 the AF/CV directed the establishment of an 11-person AF Liaison Office (LNO) at USJFCOM with representatives from across the AF to increase participation in joint transformation activities including joint concept development and experimentation and joint Doctrine, Organization, Training, Material, Leadership & Education, Personnel & Facilities (DOTMLPF) recommendations. Air Force A5XS ensures accurate representation of air and space capabilities in joint activities, through modeling and simulation and wargaming activities.

This program is categorized in Budget Activity (BA) 7 because it supports the development efforts of operational systems.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Develops air and space wargaming specific functionality in existing simulation and analysis tools (e.g., JWARS, THUNDER/STORM)	1.692	1.710	1.500
(U) Provides for capabilities, Requirements, and Risk Assessment (CRRA)	1.730	1.840	1.600
(U) Enables entity-level simulation tools and effects-based modeling for Joint Concept Development and Experimentation	1.740	1.790	1.500
(U) Supplies platforms for software in operational environments and for programmed replacement costs	1.608	1.778	2.140
(U) Total Cost	6.770	7.118	6.740

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Not applicable										

**(U) D. Acquisition Strategy**

All contracts will be awarded based on full and open competition.

UNCLASSIFIED

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>07 Operational System Development</b>				<b>0207697F Distributed Training and Exercises</b>					<b>5190 JFCOM Wargaming</b>			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
Various	TBD	TBD		6.770		7.118		6.740		Continuing	TBD	TBD
Subtotal Product Development			0.000	6.770		7.118		6.740		Continuing	TBD	TBD
Remarks:												
(U) <u>Support</u>												
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			0.000	6.770		7.118		6.740		Continuing	TBD	TBD
Note: Funding is for a continuous series of updates and modifications. There is no contract award associated with this funding.												

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0207697F Distributed Training and Exercises

PROJECT NUMBER AND TITLE  
5190 JFCOM Wargaming

AF Liaison Office (LNO) to USJFCOM

FY08

FY09

FY10

	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Receipt of Funds	▲											
Adapt models for wargaming	▲									▼		
Determine integration req					▲					▼		
Integrate AF and joint models									▲			
Perform CRRA Analysis	▲					▼			▲			▼
ID models to fill shortfalls				▲					▼			
Replace platforms								▲	▼			

Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207697F Distributed Training and Exercises

PROJECT NUMBER AND TITLE

5190 JFCOM Wargaming

(U) Schedule Profile

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Adapt STORM/THUNDER and JWARS for wargaming	1-4Q	1-4Q	1-4Q
(U) Determine other model integration/adaptation requirements	2-3Q	2-3Q	2-3Q
(U) Perform CRRA analysis biannually, integratin wargaming/CRAA processes.	1-4Q		1-4Q
(U) Joint Concept Development and Implementation	3-4Q	3-4Q	3-4Q

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0208006F Mission Planning Systems</b>
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	101.666	97.296	91.995	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
3858 Mission Planning Systems (MPS)	101.666	95.345	90.321	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5302 Precision Aerial Delivery System	0.000	1.951	1.674	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

PADS FY08 funding (\$1.800) is included in Project 3858. PADS FY09 and outyear funding is included in Project 5302.

**(U) A. Mission Description and Budget Item Justification**

Mission planning involves the creation of a flight plan based on threats, targets, terrain, weather, aircraft performance capability, and configuration. It is an essential task that must be completed prior to any fixed or rotary wing aircraft sortie. The planner must have the ability to plan weapon, cargo, passenger, and/or fuel delivery, calculate fuel requirements, and assess the route based on known enemy threat location and type. Mission planners must be able to optimize and de-conflict flight routes with other aircraft; review, print, and brief the mission plan; and download pertinent flight information to on-board aircraft avionics.

The Mission Planning Systems (MPS) program is a collaborative program with the Army and Navy to leverage technical solutions and business practices for all Department of Defense (DoD) aircraft platforms, fixed and rotary wing. It provides automated mission-planning tools and support for fixed and rotary wing aircraft and guided munitions. It will replace two closed architecture legacy mission planning systems (Unix-based MPS (Unix-MPS) and the PC-based Portable Flight Planning Software (PFPS)), with a single multi-service open architecture system more commonly referred to as the Joint Mission Planning System (JMPS). JMPS will enable the mission planning cycle to be compressed by providing an improved integrated planning environment, reducing the time required to respond to changing situations and urgent needs such as striking time sensitive/critical targets and conducting combat search and rescue. The JMPS development program will migrate a variety of Air Force aircraft, weapons, and airdrop payload systems from legacy mission planners to MPS. These systems include the A-10, B-1B, C-5, C-17, C-130, E-3, E-8, F-16, F-15, F-22A, KC-10, KC-135, RC-135, HH-60, and their associated weapons (e.g. Small Diameter Bomb (SDB), Joint Direct Attack Munitions (JDAM), Joint Stand Off Weapon (JSOW), Wind Corrected Munitions Dispenser (WCMD), Joint Air-to-Surface, Standoff Munitions (JASSM), etc...) and airdrop payloads. JMPS will significantly benefit command and control performance by enhancing information superiority for the warfighter and by providing unique capabilities in support of both precision engagement and dominant maneuver.

Additionally, elements of Mission Planning will be utilized to continue development of a Precision Airdrop System (PADS) in conjunction with the Army. The PADS System of Systems (SoS) capability provides a planning and execution capability for DoD airdrop requirements. It is the primary airdrop mission planning and execution system when the mission profile or surface-to-air threat assessment warrants high-altitude and/or standoff precision delivery. PADS enables high-altitude, precise airdrop delivery to forward ground forces, mitigating surface-to-air threats reducing risk of IED & insurgent attack on ground convoys. PADS allows the warfighter to consider weather, terrain, aircraft capabilities, threat, etc... to accurately deliver payload.

The Mission Planning Systems program is in Budget Activity 7 because it provides for development of technologies and capabilities to support and ultimately replace the currently fielded PFPS and Unix-MPS systems.

Exhibit R-2, RDT&E Budget Item Justification

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0208006F Mission Planning Systems

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	104.575	97.560	98.574
(U) Current PBR/President's Budget	101.666	97.296	91.995
(U) Total Adjustments	-2.909	-0.264	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.264	
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer	-2.909		
(U) <u>Significant Program Changes:</u>			



<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0208006F Mission Planning Systems</b>	<b>PROJECT NUMBER AND TITLE</b> <b>3858 Mission Planning Systems (MPS)</b>
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
3858 Mission Planning Systems (MPS)	101.666	95.345	90.321	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

PADS FY08 funding (\$1.800) is included in Project 3858. PADS FY09 and outyear funding is included in Project 5302.

**(U) A. Mission Description and Budget Item Justification**

Mission planning involves the creation of a flight plan based on threats, targets, terrain, weather, aircraft performance capability, and configuration. It is an essential task that must be completed prior to any fixed or rotary wing aircraft sortie. The planner must have the ability to plan weapon, cargo, passenger, and/or fuel delivery, calculate fuel requirements, and assess the route based on known enemy threat location and type. Mission planners must be able to optimize and de-conflict flight routes with other aircraft; review, print, and brief the mission plan; and download pertinent flight information to on-board aircraft avionics.

The Mission Planning Systems (MPS) program is a collaborative program with the Army and Navy to leverage technical solutions and business practices for all Department of Defense (DoD) platforms. It provides automated mission-planning tools and support for fixed and rotary wing aircraft and guided munitions. It will replace two closed architecture legacy mission planning systems (Unix-based MPS (Unix-MPS) and the PC-based Portable Flight Planning Software (PFPS)), with a single multi-service open architecture system more commonly referred to as the Joint Mission Planning System (JMPS). JMPS will enable the mission planning cycle to be compressed by providing an improved integrated planning environment, reducing the time required to respond to changing situations and urgent needs such as striking time sensitive/critical targets and conducting combat search and rescue. The JMPS development program will migrate a variety of Air Force aircraft, weapons, and airdrop payload systems from legacy mission planners to MPS. These systems include the A-10, B-1B, C-5, C-17, C-130, E-3, E-8, F-16, F-15, F-22A, KC-10, KC-135, RC-135, HH-60, and their associated weapons (e.g. Small Diameter Bomb (SDB), Joint Direct Attack Munitions (JDAM), Joint Stand Off Weapon (JSOW), Wind Corrected Munitions Dispenser (WCMD), Joint Air-to-Surface, Standoff Munitions (JASSM), etc...) and airdrop payloads. In addition, basic JMPS products have the potential to support all DoD fixed-wing and rotary-wing aircraft and will be shared with other AF programs as well as the Army and Navy. Additionally, elements of mission planning will be utilized to continue development of a Joint Precision Airdrop System (JPADS) in conjunction with the Army. JMPS will significantly benefit command and control performance by enhancing information superiority for the warfighter and by providing unique capabilities in support of both precision engagement and dominant maneuver.

JMPS uses an evolutionary acquisition approach, which emphasizes spiral development and the use of Increments (increment content is described below) to provide capabilities to individual AF platforms. Additionally, the JMPS architecture enables common components to be utilized by multiple service platforms and weapons systems where appropriate, thereby reducing duplicative software development efforts and increasing interoperability between services. Furthermore, JMPS is developed using a net centric strategy. The JMPS framework and common components will require continuous upgrades to: 1) reduce timelines for route planning; 2) transmit near real-time intelligence data to the platforms; 3) increase the accuracy of the mapping products; 4) provide a Windows-based, COTS-based, user friendly product; and 5) retain compatibility with platform changes to avionics and operational flight programs. Mission Planning increments and modernization efforts are as follows:

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>		DATE <b>May 2009</b>
BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0208006F Mission Planning Systems</b>	PROJECT NUMBER AND TITLE <b>3858 Mission Planning Systems (MPS)</b>

- a. Increment II - completed the migration of the F-15 from the legacy Unix-MPS system with the fielding of the F-15 Suite 5 Mission Planning Environment (MPE) in November 2007. It also provided an initial JMPS product for the RC-135.
- b. Increment III - continues the initial migration of additional aircraft platforms (F-22A, F-16, B-1B, A-10, and RC-135) and weapons (e.g. JASSM) to JMPS. It also upgrades the framework and develops new common components (e.g. Weather, Electronic Warfare, Airdrop, and Precision Guided Munitions) and unique platform capabilities for selected aircraft and weapons. Additionally, engineering studies will be conducted to plan and support the migration of future platforms to JMPS.
- c. Increment IV - continues the JMPS migration effort by migrating Tanker Airlift Special Mission (TASM) aircraft [e.g. C-5, C-17, C-130, KC-10, KC-135, E-3, E-8], Mobility Air Forces (MAF) centralized planning systems, and the HH-60. It also upgrades the framework and several Common Components capabilities (e.g. Enhanced Air Refueling, Precision Guided Munitions Planning Software (PGMPS)). In addition, Increment IV updates platforms that previously transitioned to JMPS (F-15, F-16, A-10, B-1B, and F-22A) to provide capabilities IAW the Inc IV CDD. Additionally, engineering studies and analyses will be conducted to support current program planning and execution and support the migration of future platforms to JMPS.
- d. MPS MPE Modernization - Will modify Mission Planning Environments (MPEs) that are being developed in Increments II-IV and are being deployed over the next few years. The modernization activities will provide new and improved mission planning capabilities for individual MPEs as required to meet evolving platform OFP requirements for new weapons, avionics upgrades, communications systems, etc.. It will also complete a variety of studies and analyses, including evaluating new Information Technology (IT) infrastructure technologies, in support of future system upgrades.

Several systems have undergone system level testing. The F-15 Suite 1.3.4 completed operational testing. The F-15 OT report rated the system "effective and suitable" and noted a "significant improvement in system stability & installation". The F-15 was fielded in Jun 08. The F-15 v2.0 completed contractor formal qualification testing and entered system development testing and v2.1 completed it's Critical Design Review. The B-1 v3.0 completed operational testing in Sep 09, while follow-on versions v4.0 completed CDR and v5.0 completed PDR. The F-16 Block 40/50 M4.2+ completed system level DT and received OSD Milestone Decision Authority approval to enter OT. The B-1 completed operational testing and was rated "effective, suitable, and effective". The new JMPS framework (v1.4) completed a fly-off competition and a down-select decision was achieved. F-22 development continued with Inc 2.0 and 3.1 completing Formal Qualification Testing. TASM Spiral 1.a completed Critical Design Review.

The Mission Planning Systems program is in Budget Activity 7 because it provides for development of technologies and capabilities to support and ultimately replace the currently fielded PFPS and Unix-MPS systems.

<u>(U) B. Accomplishments/Planned Program (\$ in Millions)</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Increment III - Continues the migration of mission planning capability to JMPS	25.677	4.160	0.498
(U) Increment III - Test, Training, and Certification	2.554	0.442	0.053
(U) Increment III - FFRDC (Mitre)	1.865	0.298	0.036
(U) Increment III - Program Office Support	3.694	0.460	0.061
(U) Increment IV - Continues the migration of Mission Planning capability to JMPS	48.931	59.519	43.522
(U) Increment IV - Test, Training, and Certification	4.867	6.318	4.647

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Project 3858

Exhibit R-2a (PE 0208006F)

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0208006F Mission Planning Systems</b>	<b>PROJECT NUMBER AND TITLE</b> <b>3858 Mission Planning Systems (MPS)</b>
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<b>(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Increment IV - FFRDC (Mitre)	3.553	4.270	3.138
(U) Increment IV - Program Office Support	7.040	6.580	5.294
(U) MPS Modernization	1.685	13.298	33.072
(U) JPADS	1.800		
(U) Total Cost	101.666	95.345	90.321

<b>(U) <u>C. Other Program Funding Summary (\$ in Millions)</u></b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Other Appn										
(U) OPAF PE 0208006F (Other Procurement Air Force, WSC 833040, Theater Air Control System Improvement)	9.446	14.405	11.459						Continuing	TBD

**(U) D. Acquisition Strategy**  
Mission Planning Systems utilizes an evolutionary acquisition approach to develop and deliver an interoperable, network-centric, mission planning system tailored for numerous Air Force platforms using competition and multiple contract vehicles.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>				PE NUMBER AND TITLE <b>0208006F Mission Planning Systems</b>				PROJECT NUMBER AND TITLE <b>3858 Mission Planning Systems (MPS)</b>				
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
<b>(U) <u>Product Development</u></b>												
Mission Planning Enterprise Contract	C/Various	Various	179.168	59.301	Nov-07	52.303	Nov-08	38.037		Continuing	TBD	TBD
Systems Engineering and Integration	C/Various	Various	48.304	15.590	Nov-07	13.314	Nov-08	13.475		Continuing	TBD	TBD
MPS Modernization	C/Various	Various		0.998		8.820	Nov-08	16.485		Continuing	TBD	TBD
JPADS	C/Various	Various		1.800						Continuing	TBD	TBD
Subtotal Product Development			227.472	77.689		74.437		67.997		Continuing	TBD	TBD
Remarks:												
<b>(U) <u>Support</u></b>												
Software Engineering Institute (SEI)	C/T&M	Pittsburgh, PA	0.325	0.325	Nov-07	0.300	Nov-08	0.300		Continuing	TBD	TBD
Tecolote	C/T&M	Bedford, MA	0.757	0.757	Nov-07	0.787	Nov-08	0.700		Continuing	TBD	TBD
Subtotal Support			1.082	1.082		1.087		1.000		Continuing	TBD	TBD
Remarks:												
<b>(U) <u>Test &amp; Evaluation</u></b>												
46TW	PO	Eglin AFB, FL	5.738	6.332	Nov-07	6.463	Nov-08	6.661		Continuing	TBD	TBD
JITC	FFP/CPAF	Indian Head, MO	0.055	0.076	Jan-08	0.058	Jan-09	0.061		Continuing	TBD	TBD
Type I Training	FPAF	Hill AFB, UT	1.223	1.140	Nov-07	1.174	Nov-08	1.209		Continuing	TBD	TBD
Subtotal Test & Evaluation			7.016	7.548		7.695		7.931		Continuing	TBD	TBD
Remarks:												
<b>(U) <u>Management</u></b>												
FFRDC (MITRE)	SS/T&M	Bedford, MA	5.700	5.511	Nov-07	5.200	Nov-08	5.356		Continuing	TBD	TBD
Program Office Support	C/T&M	Various	9.305	9.836	Nov-07	6.926	Nov-08	8.037		Continuing	TBD	TBD
Subtotal Management			15.005	15.347		12.126		13.393		Continuing	TBD	TBD
Remarks:												
<b>(U) Total Cost</b>			250.575	101.666		95.345		90.321		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

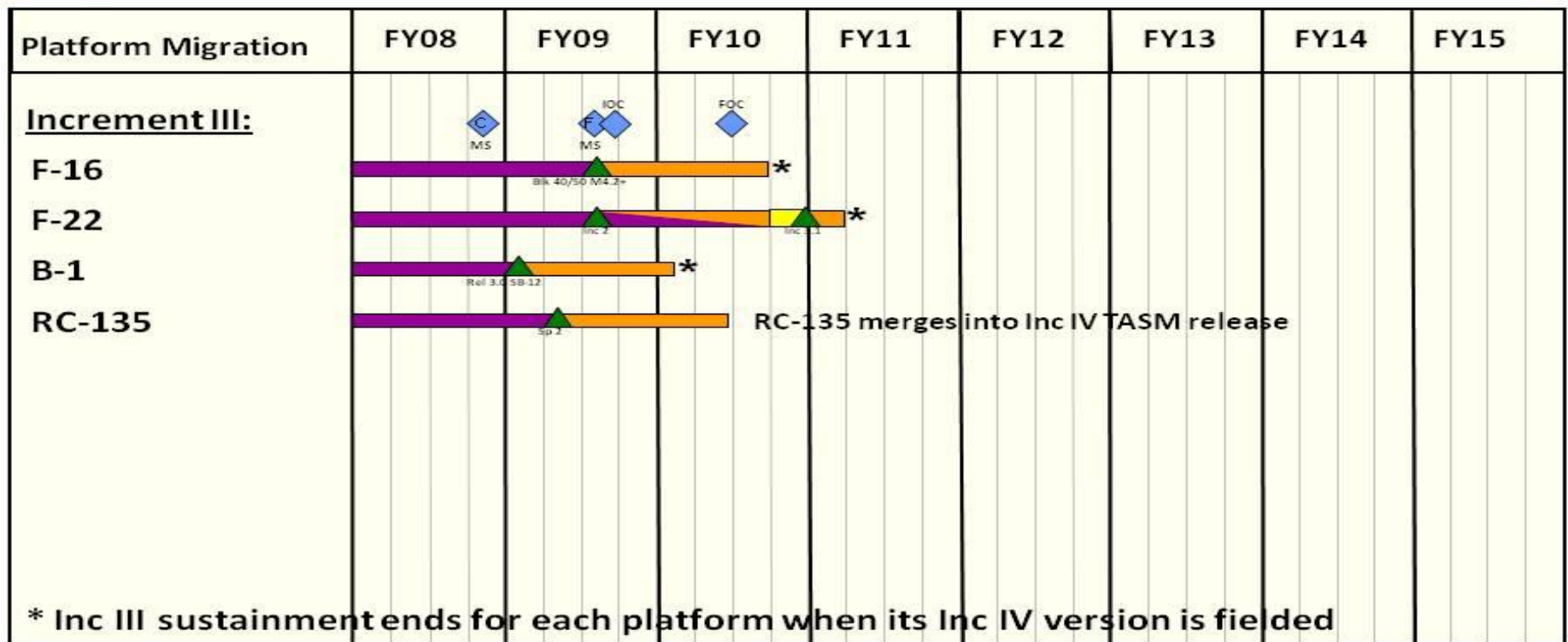
BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0208006F Mission Planning Systems

PROJECT NUMBER AND TITLE  
3858 Mission Planning Systems (MPS)



# Mission Planning Systems Increment III Program Schedule



Concept activities     
 Design / development     
 Integration / test  
 Production / fielding     
 Pre-Production     
 Key events

Mission Planning System, 31 Dec 08, PE 0208006F

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Project 3858

Exhibit R-4 (PE 0208006F)

Exhibit R-4, RDT&E Schedule Profile

DATE  
May 2009

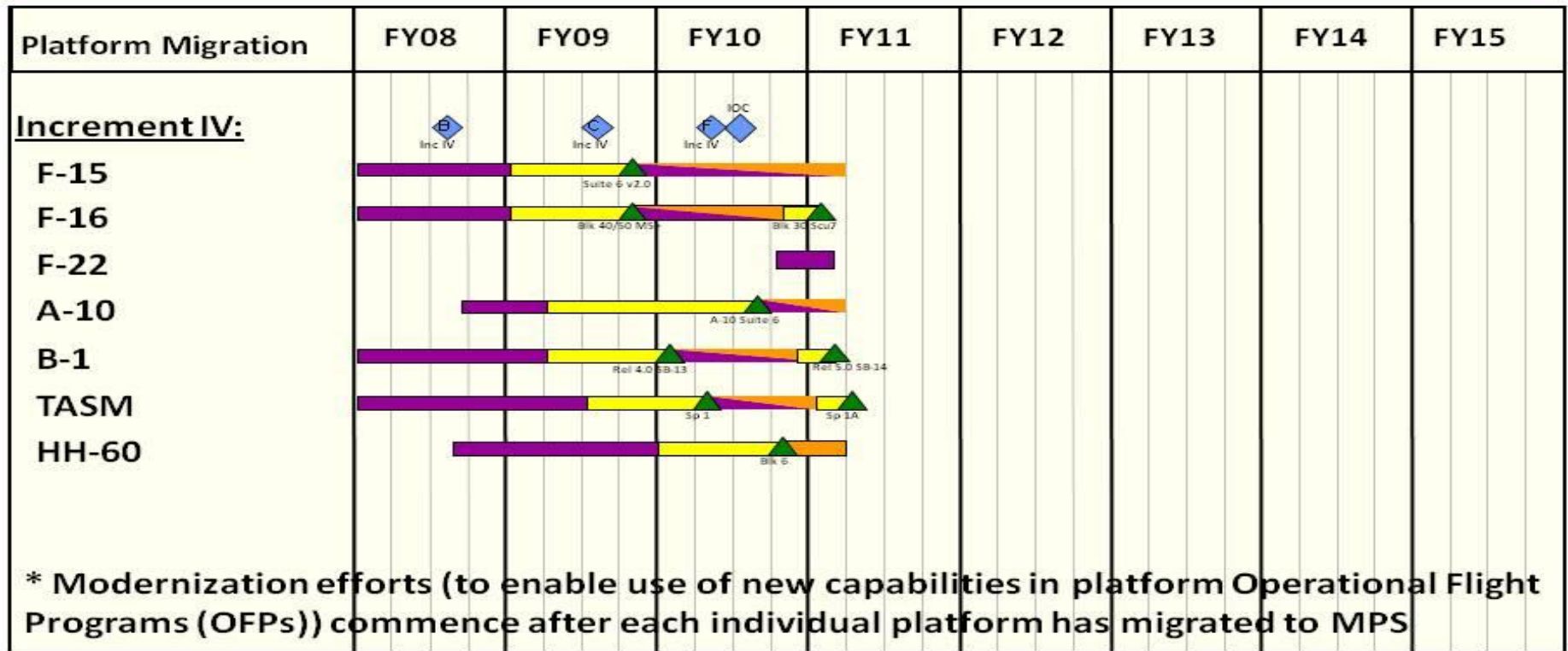
BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0208006F Mission Planning Systems

PROJECT NUMBER AND TITLE  
3858 Mission Planning Systems (MPS)



# Mission Planning Systems Increment IV Program Schedule



Mission Planning System, 31 Dec 08, PE 0208006F

2

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Project 3858

Exhibit R-4 (PE 0208006F)

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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0208006F Mission Planning Systems</b>	<b>PROJECT NUMBER AND TITLE</b> <b>3858 Mission Planning Systems (MPS)</b>
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	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) <b><u>Schedule Profile</u></b>			
(U) Increment III			
(U) - Milestone C	4Q		
(U) - B-1 SB-12 MPE Release		1Q	
(U) - FDDR		3Q	
(U) - IOC		3Q	
(U) - F-16 (Block 40, M4.2+ and Block 50, M4.2+) MPE Release		3Q	
(U) - FOC			2Q
(U) Increment IV			
(U) - Milestone B	3Q		
(U) - Milestone C		3Q	
(U) - F-15 Suite 6 MPE Release		4Q	
(U) - TASM Spiral 1 MPE Release			2Q
(U) - FDDR			2Q
(U) - IOC			3Q
(U) - A-10 Suite 6 Fielding			3Q

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>						<b>PE NUMBER AND TITLE</b> <b>0208006F Mission Planning Systems</b>		<b>PROJECT NUMBER AND TITLE</b> <b>5302 Precision Aerial Delivery System</b>		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5302 Precision Aerial Delivery System	0.000	1.951	1.674	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

PADS FY08 funding (\$1.800) is included in Project 3858. PADS FY09 and outyear funding is included in Project 5302.

**(U) A. Mission Description and Budget Item Justification**

The JPADS System of Systems (SoS) capability provides a planning and execution capability for DoD airdrop requirements. It is the primary airdrop mission planning and execution system when the mission profile or surface-to-air threat assessment warrants high-altitude and/or standoff precision delivery. JPADS enables high-altitude, precise airdrop delivery to forward ground forces, mitigating surface-to-air threats reducing risk of IED & insurgent attack on ground convoys. JPADS allows the warfighter to consider weather, terrain, aircraft capabilities, threat, etc... to accurately deliver payload.

JPADS capability is a collaborative effort among multiple services in the DOD, with the Army and the AF responsible for delivering the majority of the capability. The USAF JPADS-MP provides all software and hardware required to execute guided and unguided cargo and personnel, Military Free Fall, [MFF] missions. The USAF JPADS-MP System consists of three major components: (1) The Mission Planning System (MPS), (2) the Mission Support Equipment (MSE) and (3) the dropsondes. The MPS consists of three items:(1) the regular mission planning laptop for ground and in-flight use funded in project 3858 and (2) the regular mission planning removeable storage device also funded in project 3858 and (3) the highly specialized JPADS-MP software that enables the aircrew to calculate a precise computed air release point (CARP) for ballistic loads and a launch acceptability region (LAR) for guided systems. The JPADS aircraft Mission Support Equipment (MSE) consists of a GPS Retransmit Subsystem (GPS-RTS), a UHF Dropsonde Receive Subsystem (UHF-DRS) and a GPS-based Dropsonde. The MSE is a roll-on/roll-off capability to perform a JPADS mission. It provides near real time wind data to the MPS and it provides a GPS signal to the dropsonde and AGU payload.

MSE Block 4 builds upon the relatively mature MSE by adding additional environmental robustness requirements. FY10 provides initial funding for refactoring of the JPADS-MP rapidly fielded weather capability. This effort, combined with a refactored weather code, will interface with the JMPS framework.

Precision Aerial Delivery Systems is in Budget Activity 7 because it provides for development of technologies and capabilities to replace fielded airdrop systems that utilize Portable Flight Planning Software (PFPS).

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Mission Planning Subsystem		1.951	1.674
(U) Total Cost	0.000	1.951	1.674

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) OPAF PE 0208006F (Other Procurement Air Force WSC 83040, Theater Air Control	8.082	16.533	16.639						Continuing	TBD



## Exhibit R-2a, RDT&amp;E Project Justification

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0208006F Mission Planning Systems

PROJECT NUMBER AND TITLE

5302 Precision Aerial Delivery System

(U) **C. Other Program Funding Summary (\$ in Millions)**

System Improvement BPAC  
833049)

(U) **D. Acquisition Strategy**

PADS utilizes an evolutionary acquisition approach to develop and deliver a common, interoperable, net-centric system for both precision and non-precision airdrop using multiple contract vehicles.

UNCLASSIFIED

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>07 Operational System Development</b>				<b>0208006F Mission Planning Systems</b>					<b>5302 Precision Aerial Delivery System</b>			
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> MPS Contracts (Tybrin)	C/T&M	Ft Walton Beach, FL				1.951		1.674	Nov-09	Continuing	TBD	TBD
Subtotal Product Development			0.000	0.000		1.951		1.674		Continuing	TBD	TBD
Remarks:												
(U) <u>Support</u>											0.000	0.000
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u> 46 Test Squadron	C/T&M	Eglin, AFB								Continuing	TBD	TBD
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		Continuing	TBD	TBD
Remarks:												
(U) <u>Management</u>											0.000	0.000
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			0.000	0.000		1.951		1.674		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

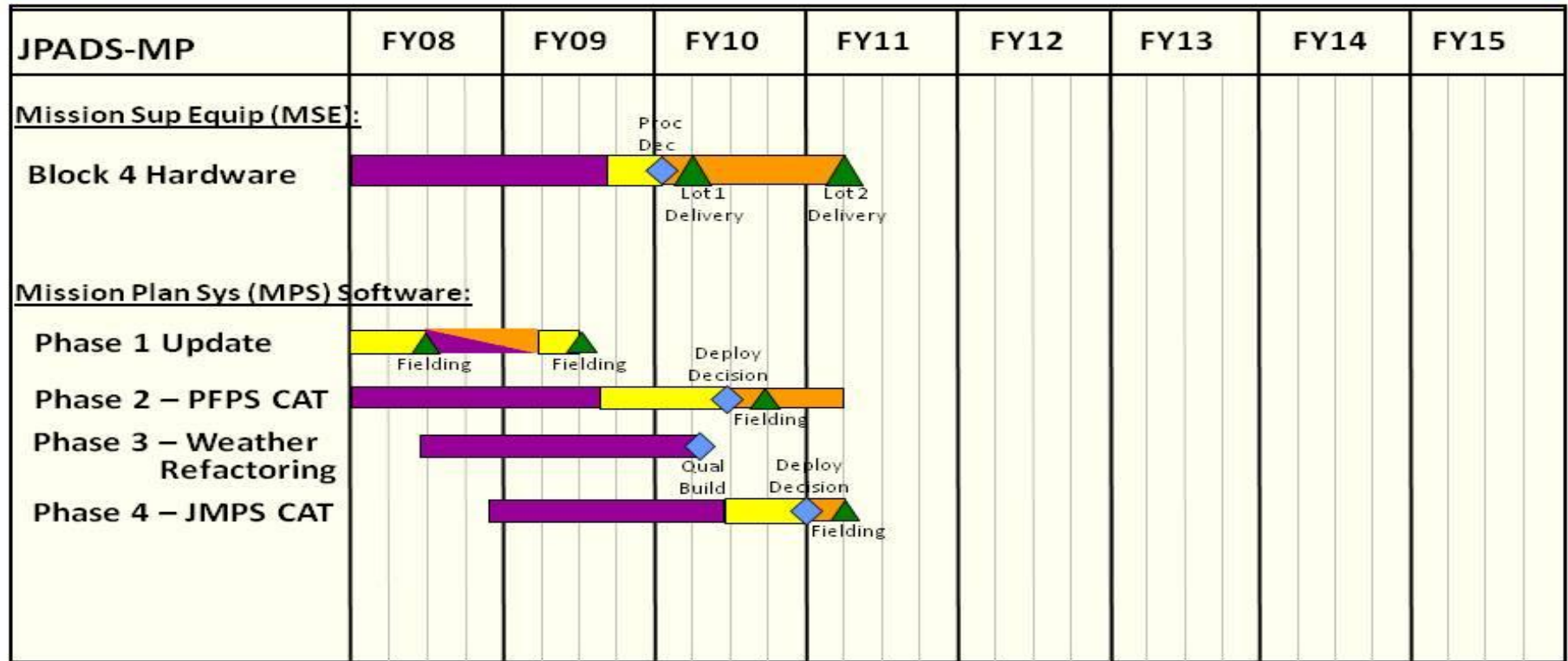
BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0208006F Mission Planning Systems

PROJECT NUMBER AND TITLE  
5302 Precision Aerial Delivery System



## Joint Precision Airdrop System-Mission Planning Program Schedule



Mission Planning System, 31 Dec 08, PE 0208006F

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Exhibit R-4 (PE 0208006F)

Project 5302

Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0208006F Mission Planning Systems</b>	PROJECT NUMBER AND TITLE <b>5302 Precision Aerial Delivery System</b>
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(U) <u>Schedule Profile</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) MSE Blk 4 Design & Development	1-4Q	1-3Q	
(U) MSE Blk 4 Testing		3-4Q	
(U) MPS Phase 1/Phase 1 Update Initial Interface with PFPS Fielding		3Q	
(U) MSE Blk 4 Procurement Decision			1Q
(U) MPS Phase 2 Consolidated Air Drop Tool for PFPS Fielding			3Q
(U) MPS Phase 3 Weather Capability Refactoring Qual Build			2Q

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0208021F Information Warfare Support</b>
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	11.632	12.117	12.271	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
0374 Electronic Combat Spt, C3 Protection/Multi-Mission, Technology and Spt	11.632	12.117	12.271	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

**(U) A. Mission Description and Budget Item Justification**

This Program Element funds research and development of information operations (IO) and intelligence capabilities required to execute counterspace and information operations in support of combatant commanders. Programs that are supported include the Information Warfare Planning Capability (IWPC), and Counterspace Intelligence Support.

IWPC is a full-spectrum, offensive and defensive, planning capability. IWPC is an Air and Space Operations Center (AOC) weapon system component which will enable operators to develop strategic courses of action for the Joint Forces Air Component Commander (JFACC); create Air Operations Directives (AODs) and Joint Air Operations Plans (JAOPs); and nominate IO "targets" for inclusion into the Master Air Attack Plan and the Joint Integrated Prioritized Target List (JIPTL). This project funds the development and upgrades, testing and evaluation, and installation and training of an evolving suite of interoperable planning and decision support capabilities comprised of software, hardware, and communications products. This project will identify and implement an open, scalable system architecture that will accommodate growth as the virtual world grows and cyber operations change. The project builds functional software modules that are designed to be interoperable with C2 systems such as the Theater Battle Management Core System (TBMCS) and other AOC tools.

The Counterspace effort provides intelligence support for key find, fix, track, target, engage, and assess (F2T2EA) requirements supporting counterspace activities and also performs developmental intelligence collection to support new capability acquisition and development. This project funds transportable intelligence collection and analysis capabilities that are modular (plug-and-play), and can keep pace with technological advances and emerging threats; intelligence support systems supporting Space Situational Awareness activities that provide the requisite current and predictive knowledge of space events and threat conditions; and, intelligence support to Space Protection Programs by providing architectural survivability analysis of critical mission assets for mission assurance. It also supports phased threat system Analysis and Studies (A&S), test support, lab equipment, and Material Acquisition and Exploitation (MAE) for new system development and vulnerability/susceptibility assessments to support tactics, techniques and procedures (TTP) development, and future threat technology studies necessary for mission area success, the achievement of space superiority, and to preserve the US space advantage across all domains.

This PE funds development and continued research to identify existing military and commercial efforts which can satisfy unfulfilled operational requirements for IO planning and integration. Activities also include studies and analysis to support both current program planning and execution and future program planning.

This program is in Budget Activity 7, Operational System Development, because it studies, develops, and fields IO tools.

Exhibit R-2, RDT&E Budget Item Justification

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0208021F Information Warfare Support

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	11.965	12.220	12.482
(U) Current PBR/President's Budget	11.632	12.117	12.271
(U) Total Adjustments	-0.333	-0.103	
(U) Congressional Program Reductions		-0.070	
Congressional Rescissions		-0.033	
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer	-0.333		
(U) <u>Significant Program Changes:</u>			
N/A			

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> 07 Operational System Development	<b>PE NUMBER AND TITLE</b> 0208021F Information Warfare Support	<b>PROJECT NUMBER AND TITLE</b> 0374 Electronic Combat Spt, C3 Protection/Multi-Mission, Technology and Spt
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
0374 Electronic Combat Spt, C3 Protection/Multi-Mission, Technology and Spt	11.632	12.117	12.271	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

This Program Element funds research and development of information operations (IO) and intelligence capabilities required to execute counterspace and information operations in support of combatant commanders. Programs that are supported include the Information Warfare Planning Capability (IWPC), and Counterspace Intelligence Support.

IWPC is a full-spectrum, offensive and defensive, planning capability. IWPC is an Air and Space Operations Center (AOC) weapon system component which will enable operators to develop strategic courses of action for the Joint Forces Air Component Commander (JFACC); create Air Operations Directives (AODs) and Joint Air Operations Plans (JAOPs); and nominate IO "targets" for inclusion into the Master Air Attack Plan and the Joint Integrated Prioritized Target List (JIPTL). This project funds the development and upgrades, testing and evaluation, and installation and training of an evolving suite of interoperable planning and decision support capabilities comprised of software, hardware, and communications products. This project will identify and implement an open, scalable system architecture that will accommodate growth as the virtual world grows and cyber operations change. The project builds functional software modules that are designed to be interoperable with C2 systems such as the Theater Battle Management Core System (TBMCS) and other AOC tools.

The Counterspace effort provides intelligence support for key find, fix, track, target, engage, and assess (F2T2EA) requirements supporting counterspace activities and also performs developmental intelligence collection to support new capability acquisition and development. This project funds transportable intelligence collection and analysis capabilities that are modular (plug-and-play), and can keep pace with technological advances and emerging threats; intelligence support systems supporting Space Situational Awareness activities that provide the requisite current and predictive knowledge of space events and threat conditions; and, intelligence support to Space Protection Programs by providing architectural survivability analysis of critical mission assets for mission assurance. It also supports phased threat system Analysis and Studies (A&S), test support, lab equipment, and Material Acquisition and Exploitation (MAE) for new system development and vulnerability/susceptibility assessments to support tactics, techniques and procedures (TTP) development, and future threat technology studies necessary for mission area success, the achievement of space superiority, and to preserve the US space advantage across all domains.

This PE funds development and continued research to identify existing military and commercial efforts which can satisfy unfulfilled operational requirements for IO planning and integration. Activities also include studies and analysis to support both current program planning and execution and future program planning.

This program is in Budget Activity 7, Operational System Development, because it studies, develops, and fields IO tools.

Exhibit R-2a, RDT&E Project Justification

DATE

May 2009

BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0208021F Information Warfare Support</b>	PROJECT NUMBER AND TITLE <b>0374 Electronic Combat Spt, C3 Protection/Multi-Mission, Technology and Spt</b>
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(U) <b>B. Accomplishments/Planned Program (\$ in Millions)</b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) IWPC Installation and Training	1.194	1.180	1.092
(U) IWPC Software Testing and Evaluation	0.271	0.275	0.279
(U) IWPC Advisory & Assistance Service (A&AS)	0.193	0.195	0.196
(U) IWPC Upgrades/Maintenance Releases	0.337	0.339	0.330
(U) IWPC MITRE Support	0.286	0.295	0.299
(U) Program Office Costs	0.080	0.085	0.086
(U) Counterspace Intelligence Support	9.271	9.748	9.989
(U) Total Cost	11.632	12.117	12.271

(U) <b>C. Other Program Funding Summary (\$ in Millions)</b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) IWPC Operations & Maintenance, AF (3400) PE 0208021	0.772	0.755	0.778	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
(U) Counterspace Intelligence Support Operations and Maintenance, AF (3400) PE 0208021F	12.603	12.739	12.954	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

(U) **D. Acquisition Strategy**  
 IWPC fielding will continue throughout FY10. Future upgrades will be delivered as maintenance releases.



UNCLASSIFIED

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0208021F Information Warfare Support</b>	<b>PROJECT NUMBER AND TITLE</b> <b>0374 Electronic Combat Spt, C3 Protection/Multi-Mission, Technology and Spt</b>
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<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
<u>(U) Product Development</u>												
IWPC A&AS	Various	Lackland AFB TX	0.680	0.193	Nov-07	0.195	Nov-08	0.196	Nov-09	Continuing	TBD	TBD
IWPC Contract	Various	General Dynamics, Lackland AFB TX/Santa Clara CA	0.706	1.531	Jul-08	1.654	Mar-09	1.561	Oct-09	Continuing	TBD	TBD
IWPC MITRE Support	Various	MITRE, Lackland AFB TX	0.530	0.286	Nov-07	0.295	Oct-08	0.299	Oct-09	Continuing	TBD	TBD
IWPC Program Office Costs	Various	Lackland AFB TX	0.135	0.080	Nov-07	0.085	Oct-08	0.086	Oct-09	Continuing	TBD	TBD
Counterspace and R&D Intelligence Support	Various	Lackland AFB TX	2.416	2.318	Nov-07	2.438	Nov-08	2.526	Nov-09	Continuing	TBD	TBD
Architecture Upgrade Support to SSA, SSP & Counterspace	Various	Lackland AFB TX	1.593	1.483	Jul-08	1.559	Nov-08	1.573	Nov-09	Continuing	TBD	
Data Analysis and Product Development for R&D	Various	Lackland AFB TX	5.120	5.006	Nov-07	5.264	Nov-08	5.434	Nov-09	Continuing	TBD	
Deployment Support for Testing & Data Collection	Various	Lackland AFB TX	0.475	0.464	Nov-07	0.487	Nov-08	0.456	Nov-09	Continuing	TBD	
Subtotal Product Development			11.655	11.361		11.977		12.131		Continuing	TBD	TBD
Remarks:												
<u>(U) Test &amp; Evaluation</u>												
IWPC Developmental Testing	T&M	46th TS, Eglin AFB FL	0.310	0.271	Dec-07	0.140	Dec-08	0.140	Dec-09	Continuing	TBD	TBD
Subtotal Test & Evaluation			0.310	0.271		0.140		0.140		Continuing	TBD	TBD
Remarks:												
<u>(U) Total Cost</u>			11.965	11.632		12.117		12.271		Continuing	TBD	TBD

R-1 Line Item No. 163

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Project 0374

Exhibit R-3 (PE 0208021F)

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

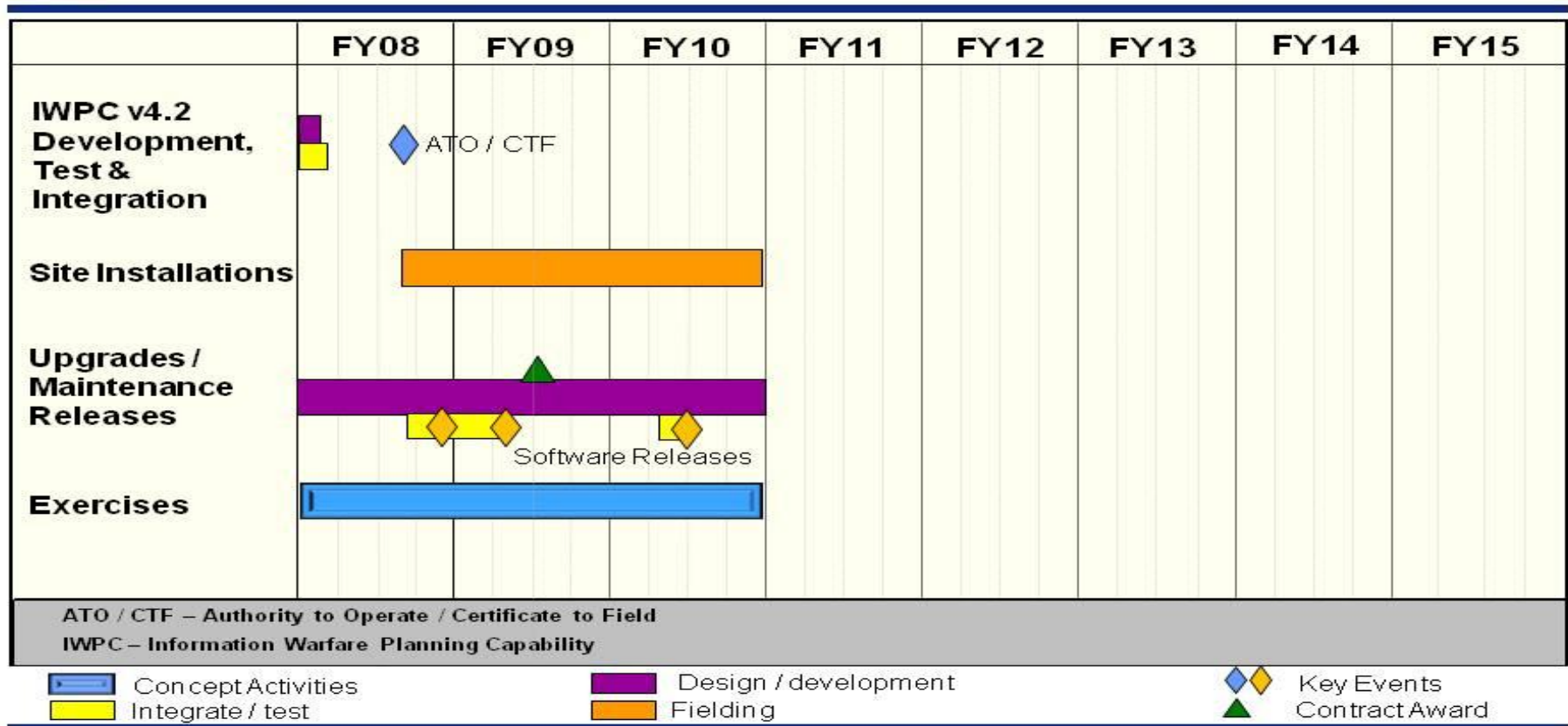
BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0208021F Information Warfare Support

PROJECT NUMBER AND TITLE  
0374 Electronic Combat Spt, C3 Protection/Multi-Mission, Technology and Spt



*IWPC Schedule*



PB10 R-Docs

R-1 Line Item No. 163

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Exhibit R-4 (PE 0208021F)

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

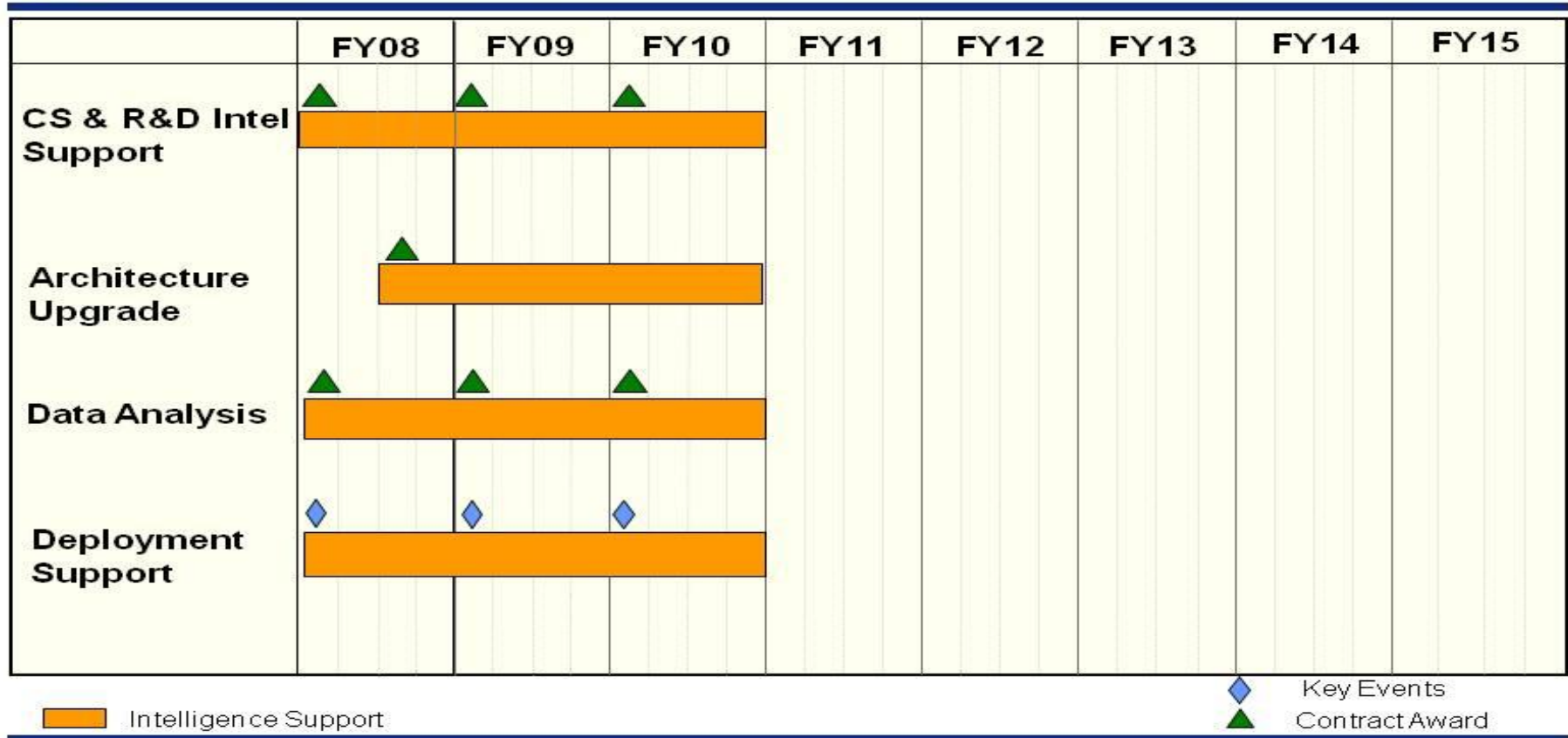
BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0208021F Information Warfare Support

PROJECT NUMBER AND TITLE  
0374 Electronic Combat Spt, C3 Protection/Multi-Mission, Technology and Spt



## CS Intelligence Program Schedule



PB10 R-Docs

Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0208021F Information Warfare Support</b>	PROJECT NUMBER AND TITLE <b>0374 Electronic Combat Spt, C3 Protection/Multi-Mission, Technology and Spt</b>
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(U) <u>Schedule Profile</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) IWPC Development, Test & Integration	1Q		
(U) IWPC Fielding/Site Installation	3-4Q	1-4Q	1-4Q
(U) IWPC Upgrades/Maintenance Releases	1-4Q	1-4Q	1-4Q
(U) Exercises	1-4Q	1-4Q	1-4Q
(U) Counterspace and R&D Intelligence Support	1-4Q	1-4Q	1-4Q
(U) Architecture Upgrade Supporting SSA, SSP, & Counterspace	3-4Q	1-4Q	1-4Q
(U) Data Analysis and Product Development for R&D	1-4Q	1-4Q	1-4Q
(U) Deployment Support for Testing and Data Collection	1-4Q	1-4Q	1-4Q

**UNCLASSIFIED**

PE NUMBER: 0302015F  
 PE TITLE: E-4B NATIONAL AIRBORNE OPERATIONS CENTER

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	<b>DATE</b> <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0302015F E-4B NATIONAL AIRBORNE OPERATIONS CENTER</b>
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	18.576	4.058	26.107	0.000	0.000	0.000	0.000	0.000	0.000	210.293
4777 E-4B Aircraft Modernization	18.576	4.058	17.259	0.000	0.000	0.000	0.000	0.000	0.000	210.293
5301 Next Generation NAOC	0.000	0.000	8.848	0.000	0.000	0.000	0.000	0.000	0.000	0.000

**(U) A. Mission Description and Budget Item Justification**

E-4B NAOC fleet satisfies the military need for an airborne operations center with communications capabilities that permit military and civilian leadership to monitor and control military and civil national assets during all phases of nuclear and non-nuclear conflict or natural disaster. The E-4B NAOC fleet also satisfies the military requirement to provide a highly survivable alternate operations center to the National Military Command Center (NMCC). Developmental modifications include, but are not limited to, upgrades and enhancements to aircraft structures, propulsion system, fuel system, environmental control system, electrical generation and distribution systems, flight safety and navigation systems (with their associated communications equipment), and the related aircraft operations center facilities, equipment, and communications necessary for the E-4B fleet to execute its mission. Additionally, funds may be utilized to explore modifications, upgrades, and future systems required to meet mission requirements.

Developmental modifications and studies/projects currently underway or planned for accomplishment under this program include:

- The E-4B NAOC Aircraft Replacement Analysis of Alternatives (AoA) was completed in October 2008 with briefings to Air Force leadership beginning in January 2009. The purpose of the study was to analyze cost, effectiveness, risk, and affordability of various airframes mated with a mission package for replacement of the E-4B to support all NAOC missions in 2020 and beyond. The AoA was conducted by a government / contractor team of over 50 personnel from across the Department of Defense stakeholder community, with inputs from relevant US Government agencies. Aircraft availability analysis from the AoA was a key driver for retaining and modifying aircraft 74-0787.
- The Executive Support Study is a Department-wide effort to analyze the support provided to the Executive Office of the President. The study leverages efforts of the Presidential Airlift Recapitalization (PAR) AoA, ICD, and CDD as well as of the E-4B Aircraft Replacement AoA to ensure that all mission requirements will be met, with emphasis on identifying efficiencies from the recapitalization efforts. The study was completed in January 2009.
- Based on the recommendations of the E-4B NAOC Aircraft Replacement AoA, the Air Force is requesting RDT&E funds in FY10 to continue analysis for a replacement fleet. Funds will be utilized to develop a Technology Development Strategy, Test and Evaluation Strategy, Systems Engineering Plan, Lifecycle Management Plan, draft Capabilities Development Document, and other required documents leading up to a Milestone A decision in second fiscal quarter 2010.
- The STU III Replacement project replaces the current Secure Telephone Units III (STU III) on board the E-4B with a more reliable secure voice system. The National Security Agency (NSA) has set a decertification date for the STU IIIIR driving the need for a new secure voice system that is certified for aircraft use. This modification will integrate a secure voice system that is certified for aircraft use into the E-4B. The prototype kit and install is on contract through the Defense Red

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

May 2009

BUDGET ACTIVITY

**07 Operational System Development**

PE NUMBER AND TITLE

**0302015F E-4B NATIONAL AIRBORNE OPERATIONS CENTER**

Switch Network (DRSN) program office, Ogden AFB, UT, and is scheduled for install June 2009.

- Electromagnetic Pulse (EMP) testing will be conducted in FY10 and FY11 to validate the E-4B fleet compliance with updated EMP protection Mil Standards. FY08 O&M funds were leveraged to update the EMP hardness and maintenance plan, update EMP training procedures, procure test articles, write test procedures, as well as conduct initial testing on one aircraft. FY10-11 RDT&E funds will be used to fully test each aircraft. The E-4B fleet will begin an annual EMP testing program with O&M funds once each aircraft has been tested.

- The Super High Frequency (SHF) Multiplexor (MUX) project integrates a new permanently installed MUX to replace the current temporary SHF MUX. The current SHF MUX is prone to intermittent disconnects and poor performance. A new device will allow the E-4B to better meet requirements of transmitting combined secure and non-secure digital data streams via satellite. This effort will integrate and test a new SHF MUX into the E-4B.

- The CNS/ATM modification upgrades the air traffic communications systems to improve Navigation and Instrument Approach capabilities. These ongoing modifications are required to comply with both U.S. and international air traffic management requirements and maintain world-wide (anytime-anywhere) availability. This modification will add Automatic Dependent Surveillance - Broadcast (ADS-B) surveillance capability, replace the current obsolete Flight Management Computers (FMCs), and upgrade or install required systems to meet domestic and foreign CNS/ATM requirements. This is expected to be an on-going program to meet evolving CNS/ATM requirements.

The E-4B program is categorized as a Budget Activity 7 - Operational System Development, because it develops modifications for a fielded system.

**(U) B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	19.406	4.069	11.554
(U) Current PBR/President's Budget	18.576	4.058	26.107
(U) Total Adjustments	-0.830	-0.011	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.011	
Congressional Increases			
Reprogrammings	-0.301		
SBIR/STTR Transfer	-0.529		

**(U) Significant Program Changes:**

All remaining C3 UHF Digitization FY08-09 RDT&E (\$2.8M in FY08 and \$3.9M in FY09) is expected to be removed upon Congressional approval of Reprogramming Action FY09-04 PA, Nuclear Surety. \$9M was added in FY10 for post-AoA analysis, and \$6M in FY10 was added for EMP testing.

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

May 2009

BUDGET ACTIVITY <b>07 Operational System Development</b>					PE NUMBER AND TITLE <b>0302015F E-4B NATIONAL AIRBORNE OPERATIONS CENTER</b>			PROJECT NUMBER AND TITLE <b>4777 E-4B Aircraft Modernization</b>		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
4777 E-4B Aircraft Modernization	18.576	4.058	17.259	0.000	0.000	0.000	0.000	0.000	0.000	210.293
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) **A. Mission Description and Budget Item Justification**

E-4B NAOC fleet satisfies the military need for an airborne operations center with communications capabilities that permit military and civilian leadership to monitor and control military and civil national assets during all phases of nuclear and non-nuclear conflict or natural disaster. The E-4B NAOC fleet also satisfies the military requirement to provide a highly survivable alternate operations center to the National Military Command Center (NMCC). Developmental modifications include, but are not limited to, upgrades and enhancements to aircraft structures, propulsion system, fuel system, environmental control system, electrical generation and distribution systems, flight safety and navigation systems (with their associated communications equipment), and the related aircraft operations center facilities, equipment, and communications necessary for the E-4B fleet to execute its mission. Additionally, funds may be utilized to explore modifications, upgrades, and future systems required to meet mission requirements.

Developmental modifications and studies/projects currently underway or planned for accomplishment under this program include:

- The E-4B NAOC Aircraft Replacement Analysis of Alternative (AoA) was completed in October 2008 with briefings to Air Force leadership beginning in January 2009. The purpose of the study was to analyze cost, effectiveness, risk, and affordability of various airframes mated with a mission package for replacement of the E-4B to support all NAOC missions in 2020 and beyond. The AoA was conducted by a government / contractor team of over 50 personnel from across the Department of Defense stakeholder community, with inputs from relevant US Government agencies. Aircraft availability analysis from the AoA was a key driver for retaining and modifying aircraft 74-0787.
- The Executive Support Study is a Department-wide effort to analyze the support provided to the Executive Office of the President. The study leverages efforts of the Presidential Airlift Recapitalization (PAR) AoA, ICD, and CDD as well as of the E-4B Aircraft Replacement AoA to ensure that all mission requirements will be met, with emphasis on identifying efficiencies from the recapitalization efforts. The study was completed January 2009.
- The STU III Replacement project replaces the current Secure Telephone Units III (STU III) on board the E-4B with a more reliable secure voice system. The National Security Agency (NSA) has set a decertification date for the STU IIIR driving the need for a new secure voice system that is certified for aircraft use. This modification will integrate a secure voice system that is certified for aircraft use into the E-4B. The prototype kit and install is on contract through the Defense Red Switch Network (DRSN) program office, Ogden AFB, UT, and is scheduled for install June 2009.
- Electromagnetic Pulse (EMP) testing will be conducted in FY10 and FY11 to validate the E-4B fleet compliance with updated EMP protection Mil Standards. FY08 O&M funds were leveraged to update EMP hardness and maintenance plan, update EMP training procedures, procure test articles, write test procedures, as well as initial testing on one aircraft. FY10-11 RDT&E funds will be used to fully test each aircraft. The E-4B fleet will begin an annual EMP testing program with O&M funds once each aircraft has been tested.

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0302015F E-4B NATIONAL AIRBORNE OPERATIONS CENTER</b>	PROJECT NUMBER AND TITLE <b>4777 E-4B Aircraft Modernization</b>
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- The Super High Frequency (SHF) Multiplexor (MUX) project integrates a new permanently installed MUX to replace the current temporary SHF MUX. The current SHF MUX is prone to intermittent disconnects and poor performance. A new device will allow the E-4B to better meet requirements of transmitting combined secure and non-secure digital data streams via satellite. This effort will integrate and test a new SHF MUX into the E-4B.

- The CNS/ATM modification upgrades the air traffic communications systems to improve Navigation and Instrument Approach capabilities. These ongoing modifications are required to comply with both U.S. and international air traffic management requirements and maintain world-wide (anytime-anywhere) availability. This modification will add Automatic Dependent Surveillance - Broadcast (ADS-B) surveillance capability, replace the current obsolete Flight Management Computers (FMCs), and upgrade or install required systems to meet domestic and foreign CNS/ATM requirements. This is expected to be an on-going program to meet evolving CNS/ATM requirements.

The E-4B program is categorized as a Budget Activity 7 - Operational System Development, because it develops modifications for a fielded system.

(U) <b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Executive Support Study	1.000		
(U) STU III - Prototype design, kit manufacturing, install, and test	14.459		
(U) SHF MUX - Prototype design, kit manufacturing, install, and test			1.054
(U) EMP Testing			6.000
(U) CNS/ATM I - Prototype design, kit manufacturing, install, and test			9.816
(U) Test plan development and test execution	0.097	0.108	0.089
(U) SPO support (A&AS) and travel	3.020	3.950	0.300
(U) Total Cost	18.576	4.058	17.259

\*\$2.8M of FY08 and \$3.9M of FY09 funds were reprogrammed out of the PE for higher priorities, but this is not reflected in the totals. For purposes of this exhibit, these funds are included in the SPO support and travel line.

(U) <b><u>C. Other Program Funding Summary (\$ in Millions)</u></b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Operations & Maintenance, AF, PE 0302015F, Used for EMP test preparation	0.600									0.600
(U) Aircraft Procurement AF, Budget Activity 5, Weapon System Code E00400, PE 0302015F; Mod 4393 STU III Replacement		11.396	6.200							17.596



<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>May 2009</b>
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BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0302015F E-4B NATIONAL AIRBORNE OPERATIONS CENTER</b>	PROJECT NUMBER AND TITLE <b>4777 E-4B Aircraft Modernization</b>
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(U) **C. Other Program Funding Summary (\$ in Millions)**

(U) Aircraft Procurement AF, Budget Activity 5, Weapon System Code E00400, PE 0302015F; Mod 4389 C-3 UHF Digitization	2.223	2.354	4.577
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(U) **D. Acquisition Strategy**

Implementation of most modifications will be contracted under the sole source Product Support Integration (PSI) with Boeing - Wichita. However, the E-4B NAOC Aircraft Replacement AoA and the Executive Support Study is contracted through DISA to Booz Allen Hamilton, and STU III Replacement is contracted through the Defense Red Switch Network (DRSN) office at Hill AFB with Raytheon.

UNCLASSIFIED

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>				<b>PE NUMBER AND TITLE</b> <b>0302015F E-4B NATIONAL AIRBORNE OPERATIONS CENTER</b>				<b>PROJECT NUMBER AND TITLE</b> <b>4777 E-4B Aircraft Modernization</b>				
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<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> Executive Support Study	CPIF	Booz Allen Hamilton, McLean, VA	0.000	1.000	Mar-08					0.000	1.000	1.000
STU III replacement integration and testing	CPIF	Raytheon, St. Petersburg, FL	0.000	14.459	Jun-08					0.000	14.459	14.027
SHF MUX Upgrade Development and Integration	CPIF	Boeing, Wichita Development & Modification Center, Wichita, KS	0.000					1.054	Mar-10	0.000	1.054	1.304
CNS/ATM Development and Integration	CPIF	Boeing, Wichita Development & Modification Center, Wichita, KS	0.000					9.816	Jun-10	Continuing	TBD	TBD
EMP Testing	FFP	Naval Air Warfare Center, Patuxent River, MD						6.000	Feb-10	0.000	6.000	8.000
Subtotal Product Development			0.000	15.459		0.000		16.870		Continuing	TBD	TBD
Remarks:	Contracting Method and Type may be altered at time of contract.											
(U) <u>Test and Evaluation</u> Modification test plan development and test execution		Boeing, Wichita Development & Modification Center, Wichita, KS		0.097	Jun-08	0.108	Jun-09	0.089	Jun-10	Continuing	TBD	TBD
Subtotal Test and Evaluation			0.000	0.097		0.108		0.089		Continuing	TBD	TBD
Remarks:												
(U) <u>Management</u> E-4B Program Office contractor support	Small	Chickasaw		0.220	May-08	0.000		0.245		Continuing	TBD	TBD

R-1 Line Item No. 170

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Exhibit R-3 (PE 0302015F)

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY		PE NUMBER AND TITLE			PROJECT NUMBER AND TITLE				
<b>07 Operational System Development</b>		<b>0302015F E-4B NATIONAL AIRBORNE OPERATIONS CENTER</b>			<b>4777 E-4B Aircraft Modernization</b>				
	Business T&M	Nation Industries, Inc., Oklahoma City, OK							
E-4B Program Office Govt TDY/PMA			2.800	3.950	0.055	Continuing	TBD	TBD	
Subtotal Management			0.000	3.020	3.950	0.300	Continuing	TBD	TBD
Remarks:	\$2.8M of FY08 and \$3.9M of FY09 funds were reprogrammed out of the PE for higher priorities, but this is not reflected in the totals. For purposes of this exhibit, these funds are included in the E-4B Program Office Govt TDY/ PMA line.								
(U) Total Cost			0.000	18.576	4.058	17.259	Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0302015F E-4B NATIONAL AIRBORNE  
OPERATIONS CENTER

PROJECT NUMBER AND TITLE  
4777 E-4B Aircraft Modernization



# E-4B NAOC Modification Schedule

	FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY15
<b>Executive Support Study</b>	Exec Study							
<b>STU III Replacement</b>	■▲							
<b>SHF MUX Upgrade</b>			■					
<b>CNS/ATM</b>			■					
<b>EMP Testing</b>		■▲	▲▲					

Time now

- Concept activities
- Design / development
- Integration / test
- Production / fielding
- Operations / sustainment
- ▲◇ Key events

**FY10 Staffer Brief**

UNCLASSIFIED

<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>May 2009</b>
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BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0302015F E-4B NATIONAL AIRBORNE OPERATIONS CENTER</b>	PROJECT NUMBER AND TITLE <b>4777 E-4B Aircraft Modernization</b>
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	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) <b><u>Schedule Profile</u></b>			
(U) Executive Support Study	2-4Q	1-2Q	
(U) STU III Replacement	2-4Q		
(U) SHF Mux Upgrade			1-4Q
(U) CNS/ATM			1-4Q
(U) EMP Testing	4Q	1-4Q	3-4Q

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>					PE NUMBER AND TITLE <b>0302015F E-4B NATIONAL AIRBORNE OPERATIONS CENTER</b>			PROJECT NUMBER AND TITLE <b>5301 Next Generation NAOC</b>		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5301 Next Generation NAOC	0.000	0.000	8.848	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

The E-4B NAOC fleet satisfies the military need for an airborne operations center with communications capabilities that permit military and civilian leadership to monitor and control military and civil national assets during all phases of nuclear and non-nuclear conflict or natural disaster. The E-4B NAOC fleet also satisfies the military requirement to provide a highly survivable alternate operations center to the National Military Command Center (NMCC). The Air Force does not expect E-4B NAOC requirements to substantively change during the next two decades. Additionally, lifecycle costs, particularly O&M, will increase substantially as the fleet ages and support for the Boeing 747-200 class diminishes. Thus, it is imperative to further analyze recapitalization of the E-4B NAOC fleet.

Based on the recommendations of the E-4B NAOC Aircraft Replacement AoA, the Air Force is requesting RDT&E funds in FY10 to continue analysis for a replacement fleet. Funds will be utilized to develop a Technology Development Strategy, Test and Evaluation Strategy, Systems Engineering Plan, Lifecycle Management Plan, draft Capabilities Development Document, and other required documents leading up to a Milestone A decision in 2011.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Technology Development Strategy, Test and Evaluation Strategy, Systems Engineering Plan, Lifecycle Management Plan, draft Capabilities Development Document, and other required documents leading up to a Milestone A decision in second fiscal quarter 2010			8.848
(U) Total Cost	0.000	0.000	8.848

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Operations & Maintenance, Air Force, PE 0302015F	0.917								0.000	0.917

**(U) D. Acquisition Strategy**

Post-AoA activities are currently being funded through DISA to Booz Allen Hamilton from E-4B FY08 O&M funds (\$.917M FY08); however, ESC/XR will be the contracting authority for the \$8.8M FY10 RDT&E. A contracting strategy for this effort is being developed and will be further defined upon Air Force direction.

UNCLASSIFIED

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>07 Operational System Development</b>				<b>0302015F E-4B NATIONAL AIRBORNE OPERATIONS CENTER</b>					<b>5301 Next Generation NAOC</b>			
<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
<u>(U) Product Development</u>												
Subtotal Product Development			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
<u>(U) Support</u>												
Project Management Support	FFP	Booz Allen Hamilton, McLean, VA						8.348	Feb-10		8.348	
Subtotal Support			0.000	0.000		0.000		8.348		0.000	8.348	0.000
Remarks:		Contracting Method and Type may be altered at time of contract										
<u>(U) Test &amp; Evaluation</u>												
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
<u>(U) Management</u>												
Govt TDY								0.500			0.500	
Subtotal Management			0.000	0.000		0.000		0.500		0.000	0.500	0.000
Remarks:												
<u>(U) Total Cost</u>			0.000	0.000		0.000		8.848		0.000	8.848	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0302015F E-4B NATIONAL AIRBORNE  
OPERATIONS CENTER

PROJECT NUMBER AND TITLE  
5301 Next Generation NAOC

# E-4B NAOC Replacement Program

	FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY15
<b>E-4B Replacement Activities</b>	AoA							
	Exec Study							
		Material Solution Analysis						

■ Concept activities  
■ Production / fielding

■ Design / development  
■ Operations / sustainment

■ Integration / test  
 △◇ Key events

**PB10 R-Docs**

1



Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0302015F E-4B NATIONAL AIRBORNE  
OPERATIONS CENTER

PROJECT NUMBER AND TITLE

5301 Next Generation NAOC

(U) Schedule Profile

FY 2008

FY 2009

FY 2010

(U) Material Solutions Analysis

1-4Q

1-4Q

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**UNCLASSIFIED**

PE NUMBER: 0303112F  
 PE TITLE: AIR FORCE COMMUNICATIONS

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0303112F AIR FORCE COMMUNICATIONS</b>
--	--

Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	2.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
4787 Information Systems	2.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

(U) **A. Mission Description and Budget Item Justification**  
 Air Force Communications Agency's Airborne Networking Integration effort horizontally synchronizes existing and future airborne networking (AN) projects with mission priorities to deliver enhanced combat capability and transform to net-centric warfare. This project is in Budget Activity 07, Operational System Development, because it addresses integration and transition of airborne networking capabilities to a network-centric environment.

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	2.009	0.000	
(U) Current PBR/President's Budget	2.009	0.000	0.000
(U) Total Adjustments	0.000	0.000	
(U) Congressional Program Reductions			
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer			

(U) Significant Program Changes:

Exhibit R-2a, RDT&E Project Justification

DATE  
**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>					PE NUMBER AND TITLE <b>0303112F AIR FORCE COMMUNICATIONS</b>			PROJECT NUMBER AND TITLE <b>4787 Information Systems</b>		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
4787 Information Systems	2.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) **A. Mission Description and Budget Item Justification**

Air Force Communications Agency's Airborne Networking Integration effort horizontally synchronizes existing and future airborne networking (AN) projects with mission priorities to deliver enhanced combat capability and transform to net-centric warfare. This project is in Budget Activity 07, Operational System Development, because it addresses integration and transition of airborne networking capabilities to a network-centric environment.

(U) **B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Intiate/continue capabilities-based end-to-end enterprise services and mission thread analysis	1.000		
(U) Initiate/continue modeling & simulation of airborne networking capabilities to tactical Edge	1.009		
(U) Initiate analysis/development/fielding of common GEP			
(U) Total Cost	2.009	0.000	0.000

(U) **C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to Complete</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>		
(U) Not applicable										

(U) **D. Acquisition Strategy**

Common GiG Entry Point development and Tactical Edge Services development. Fee-for-service entities such as DARPA & ESC will provide analysis and engineering support.

UNCLASSIFIED

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE				
<b>07 Operational System Development</b>				<b>0303112F AIR FORCE COMMUNICATIONS</b>				<b>4787 Information Systems</b>				
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
Subtotal Product Development			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Support</u>												
Engineering /Analysis & Tactical Edge Services	MIPR	DARPA	0.000	2.009	Oct-31	0.000				Continuing	TBD	TBD
Subtotal Support			0.000	2.009		0.000		0.000		Continuing	TBD	TBD
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
GiG Entry Points	MIPR	ESC Hanscom AFB, MA	0.000	0.000		0.000				Continuing	TBD	TBD
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		Continuing	TBD	TBD
Remarks:												
(U) <u>Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			0.000	2.009		0.000		0.000		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY  
07 Operational System Development

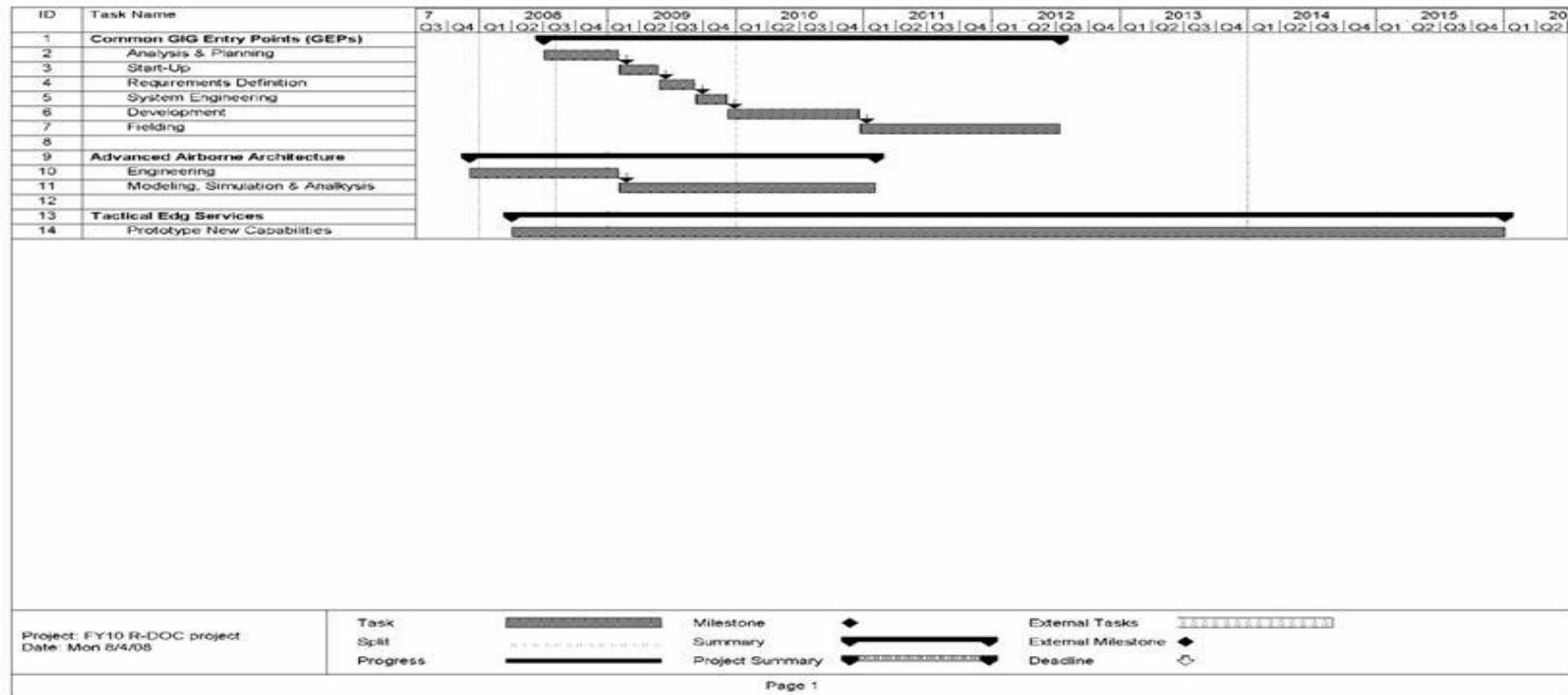
PE NUMBER AND TITLE  
0303112F AIR FORCE  
COMMUNICATIONS

PROJECT NUMBER AND TITLE  
4787 Information Systems



U.S. AIR FORCE

# Exhibit R-4 BPAC 4787 Airborne Networking Integration



*Integrity - Service - Excellence*

Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0303112F AIR FORCE  
COMMUNICATIONS

PROJECT NUMBER AND TITLE

4787 Information Systems

(U) Schedule Profile

FY 2008

FY 2009

FY 2010

(U) Enterprise Services and Network Management Analysis

1-4Q

1-4Q

(U) GiG Entry Points (GEP)

1-4Q

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**UNCLASSIFIED**

PE NUMBER: 0303131F

PE TITLE: Minimum Essential Emergency Communications Network (MEECN)

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0303131F Minimum Essential Emergency Communications Network (MEECN)</b>
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	85.458	70.562	72.694	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
2832 MEECN System Improvements	1.996	2.209	1.806	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
4610 Minuteman MEECN Program Upgrade (MMPU)	25.368	29.705	14.746	0.000	0.000	0.000	0.000	0.000	0.000	TBD
5047 Ground Element MEECN System (GEMS)	58.094	38.648	56.142	0.000	0.000	0.000	0.000	0.000	0.000	TBD

**(U) A. Mission Description and Budget Item Justification**

Minimum Essential Emergency Communications Network (MEECN) systems provide assured communications connectivity between the President and the strategic deterrent forces in stressed environments. There are three on-going MEECN activities working to modernize strategic forces' communication networks.

- MEECN Systems Improvements (MSI) is a long-range planning process with Users (Air Combat Command (ACC), Air Force Space Command (AFSPC), US Strategic Command (USSTRATCOM), Air Mobility Command (AMC), and the Navy) to develop positions for current and future requirements/issues based on available technology.
- Minuteman MEECN Program Upgrade (MMPU) updates existing systems composed of Minuteman ICBM Launch Control Center (LCC) Very Low Frequency/Low Frequency (VLF/LF) along with a Minuteman ICBM LCC Extremely High Frequency (EHF) communications capability. MMPU will provide a capability in the LCC for the Missile Combat Crew Members to have operator control of the terminal to switch among various EHF/AEHF satellite constellations and be compatible with Advanced EHF (AEHF). AEHF is an Extended Data Rate (XDR) waveform that provides more secure transmit/receive at frequencies above 20 GHz.
- Ground Element MEECN Systems (GEMS) provides a secure, survivable inter-site and intra-site and mobile VLF and EHF communication to bomber, tanker, reconnaissance units and other communications facilities with strategic responsibilities. GEMS replaces existing mission-deficient systems. GEMS will also be upgraded to AEHF with the XDR waveform.

This program is Budget Activity 07, Operational System Development, because it supports work on currently fielded weapon systems.

Exhibit R-2, RDT&E Budget Item Justification

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0303131F Minimum Essential Emergency Communications Network (MEECN)

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	88.224	70.995	9.762
(U) Current PBR/President's Budget	85.458	70.562	72.694
(U) Total Adjustments	-2.766	-0.433	
(U) Congressional Program Reductions		-0.241	
Congressional Rescissions		-0.192	
Congressional Increases			
Reprogrammings	-0.789		
SBIR/STTR Transfer	-1.977		
(U) <u>Significant Program Changes:</u>			
FY 10: Restructure of the GEMS and MMPU programs.			

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>					PE NUMBER AND TITLE <b>0303131F Minimum Essential Emergency Communications Network (MEECN)</b>			PROJECT NUMBER AND TITLE <b>2832 MEECN System Improvements</b>		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
2832 MEECN System Improvements	1.996	2.209	1.806	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

- MEECN Systems Improvements (MSI) is a long-range planning process with Users (Air Combat Command (ACC), Air Force Space Command (AFSPC), US Strategic Command (USSTRATCOM), Air Mobility Command (AMC), and the Navy) to develop positions for current and future requirements/issues based on available technology.
- Trade-off analysis is performed to identify benefits and drawbacks of maintaining current systems. Studies are conducted to monitor communications system technology and potential integration complexities into current and future capabilities.
- MSI provides pro-active support to the Nuclear and National C2 community:
  - Develops an Air Force National Command and Control (NC2) Roadmap for FYDP budget inputs.
  - Partner with Navy on Common VLF Receiver requirements and architectural design.
- This program is in Budget Activity 07, Operational System Development, because it supports work on currently fielded weapon systems.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) VLF/LF Modernization Studies	0.300	0.600	0.600
(U) Nuclear Command & Control Performance Study (NC2 Roadmap) & simulator for testing of communication architectures	0.905	0.800	0.681
(U) Vol VII EAM format updates	0.200	0.200	
(U) Analytical Support	0.591	0.609	0.525
(U) Total Cost	1.996	2.209	1.806

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) None										

**(U) D. Acquisition Strategy**

- Johns Hopkins University (JHU) Applied Physics Lab (APL) is on contract to provide an NC2 Roadmap in terms of the New Triad.
- VLF/LF modernization is being coordinated with the Navy to identify potential common solutions.

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0303131F Minimum Essential Emergency Communications Network (MEECN)</b>	<b>PROJECT NUMBER AND TITLE</b> <b>2832 MEECN System Improvements</b>
--	--	--

<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
<u>(U) Product Development</u>												
CEP Analysis	MIPR	JHU APL, Laurel, MD	0.805								0.805	0.805
NC2 Roadmap	MIPR	JHU APL, Laurel, MD	1.485	0.905	Oct-07	0.800	Jan-09	0.681	Dec-09	Continuing	TBD	TBD
Simulation/Modeling Equipment	MIPR	Lincoln Labs, Bedford, MA	2.224								2.224	2.224
Vol VII EAM Format Updates		GDCS, Needham, MA	0.300	0.200	Dec-07	0.200	Dec-08			Continuing	TBD	TBD
VLF/LF Modernization Studies	MIPR	SPAWAR, San Diego, CA		0.300	Jul-08	0.600	May-09	0.600	Jan-10	Continuing	TBD	TBD
Subtotal Product Development			4.814	1.405		1.600		1.281		Continuing	TBD	TBD
Remarks:												
<u>(U) Support</u>												
Engineering and Acquisition Support	Various	Various	7.075	0.591	Jan-08	0.609	Jan-09	0.525	Jan-10	Continuing	TBD	TBD
MITRE	LOE	Bedford, MA	0.633								0.633	0.633
Subtotal Support			7.708	0.591		0.609		0.525		Continuing	TBD	TBD
Remarks:												
<u>(U) Test &amp; Evaluation</u>												
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
<u>(U) Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
<u>(U) Total Cost</u>			12.522	1.996		2.209		1.806		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

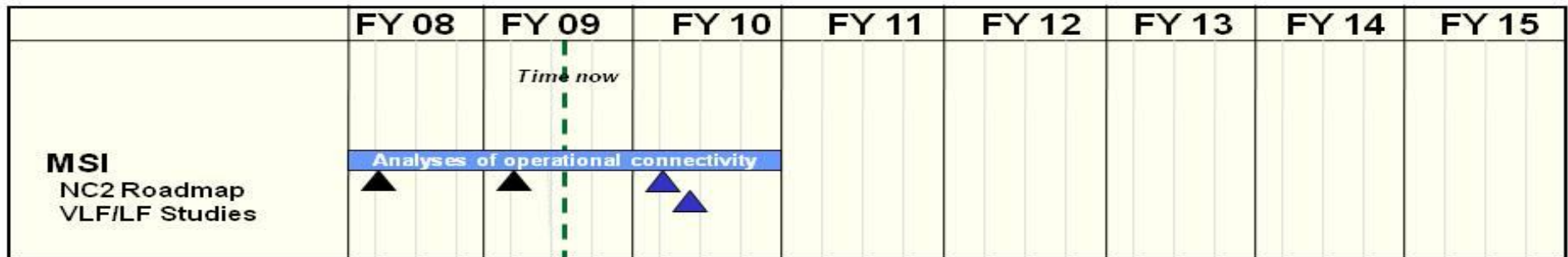
May 2009

BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0303131F Minimum Essential  
Emergency Communications Network  
(MEECN)

PROJECT NUMBER AND TITLE  
2832 MEECN System Improvements

# MSI Schedule



WST: Weapons System Test  
DT/OT: Combined Developmental and Operational Testing  
LDR: Low Data Rate

IOC: Initial Operational Capability  
FOC: Full Operational Capability  
XDR: Extended Data Rate

■ Concept activities  
■ Production / fielding

■ Design / development  
■ Operations / sustainment

■ Integration / test  
△◇ Key events

Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0303131F Minimum Essential  
Emergency Communications Network  
(MEECN)

PROJECT NUMBER AND TITLE

2832 MEECN System Improvements

(U) Schedule Profile

FY 2008

FY 2009

FY 2010

(U) NC2 Roadmap Outbriefs

2Q

2Q

2Q

(U) VLF/LF Modernization Studies

2Q

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>					PE NUMBER AND TITLE <b>0303131F Minimum Essential Emergency Communications Network (MEECN)</b>			PROJECT NUMBER AND TITLE <b>4610 Minuteman MEECN Program Upgrade (MMPU)</b>		
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
4610 Minuteman MEECN Program Upgrade (MMPU)	25.368	29.705	14.746	0.000	0.000	0.000	0.000	0.000	0.000	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

This project upgrades existing Minuteman ICBM Launch Control Center (LCC) Extremely High Frequency (EHF) communications to provide a capability for Missile Combat Crew Members to have operator control in the Launch Control Center of the terminal to switch among various EHF/AEHF satellite constellations and be compatible with Advanced EHF (AEHF).

AEHF is an Extended Data Rate (XDR) waveform that provides more secure transmit/receive at frequencies above 20 GHz. The AEHF terminal will provide both receive and report-back capability.

The terminal operator control modification will allow missile combat crews to transition between MILSTAR, UFO/E and UFO/EE satellite constellations without dispatch of a maintenance team. These modifications comply with USSTRATCOM requirement for MMP terminals to communicate at higher data rates.

This program is in Budget Activity 07, Operational System Development, because it supports work on fielded operating weapon systems.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) MMP Upgrade Technology Development			
(U) System Development and Demonstration (SDD) to include: AEHF terminal integration, AEHF modem design, cryptographic upgrade, weapon system hardness analysis, hardware development and software development for AEHF and improved operator control, analysis of power and cooling requirements, antenna integration, analysis of Software Compliant Architecture (SCA).	21.725	25.831	11.046
(U) Analytical Support	3.643	3.874	3.700
(U) Total Cost	25.368	29.705	14.746

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U)										

**(U) D. Acquisition Strategy**

The ICBM Prime Integrating Contract (through OO-ALC, Hill AFB, UT) was used as a contracting vehicle for the Minuteman MEECN Program (MMP) and will

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>		DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0303131F Minimum Essential Emergency Communications Network (MEECN)</b>	<b>PROJECT NUMBER AND TITLE</b> <b>4610 Minuteman MEECN Program Upgrade (MMPU)</b>
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continue to be used to provide an advisory role for integration support for the MMP Upgrade program.

Two Concept and Technology Demonstration (C&TD) contracts were awarded to separate vendors following full and open competition. The MMP Upgrade System Development Demonstration (SDD) effort was a full and open competition and was awarded to Raytheon Company, Marlborough, MA.



UNCLASSIFIED

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0303131F Minimum Essential Emergency Communications Network (MEECN)</b>	<b>PROJECT NUMBER AND TITLE</b> <b>4610 Minuteman MEECN Program Upgrade (MMPU)</b>
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<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
<u>(U) Product Development</u>												
MMP Development	SS/CPAF	Northrup Grumman	46.069								46.069	46.069
MMP Upgrade Technology Development	FFP	Rockwell Collins & Raytheon	16.566								16.566	16.566
MMP Upgrade Program Integrator (Advisor)	FFP	Northrup Grumman	0.612	1.345	Feb-08	2.000	Dec-08	3.867	Dec-09		7.824	4.957
MMP Upgrade System Development and Demonstration (SDD)	CPAF	Raytheon Company	2.277	20.380	Jan-08	23.831	Dec-08	7.179	Dec-09	Continuing	TBD	TBD
Subtotal Product Development			65.524	21.725		25.831		11.046		Continuing	TBD	TBD
Remarks:												
<u>(U) Support</u>												
Engineering and Acquisition Support	LOE	Various	4.025	1.633	Dec-07	1.100	Dec-08	1.500	Dec-09	Continuing	TBD	TBD
MITRE			1.941	1.763	Oct-07	0.850	Oct-08	1.900	Oct-09		6.454	5.125
PMA			0.237	0.186	Dec-07	0.202	Dec-08	0.100	Dec-09		0.725	0.625
Subtotal Support			6.203	3.582		2.152		3.500		Continuing	TBD	TBD
Remarks:												
<u>(U) Test &amp; Evaluation</u>												
Various	Various	Various	0.168	0.061	Mar-08	1.722	Mar-09	0.200	Mar-10		2.151	3.430
Subtotal Test & Evaluation			0.168	0.061		1.722		0.200		0.000	2.151	3.430
Remarks:												
<u>(U) Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
<u>(U) Total Cost</u>			71.895	25.368		29.705		14.746		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

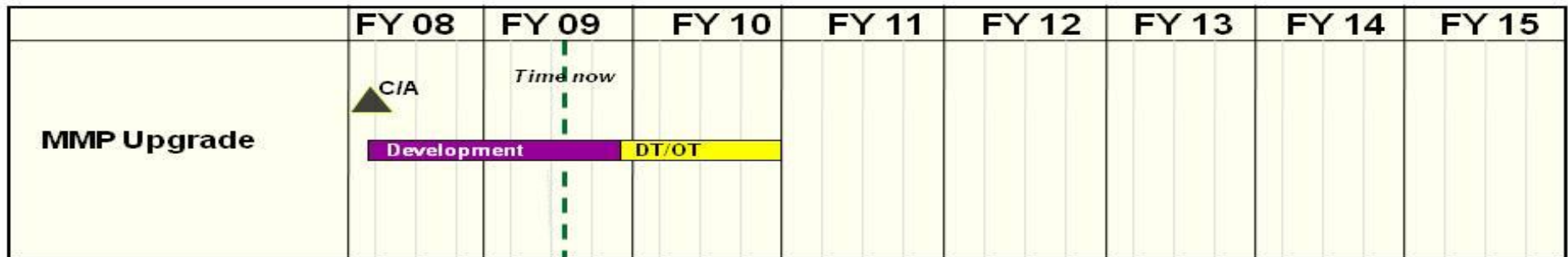
May 2009

BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0303131F Minimum Essential  
Emergency Communications Network  
(MEECN)

PROJECT NUMBER AND TITLE  
4610 Minuteman MEECN Program  
Upgrade (MMPU)

## MMP Upgrade Schedule



WST: Weapons System Test  
DT/OT: Combined Developmental and Operational Testing  
LDR: Low Data Rate

IOC: Initial Operational Capability  
FOC: Full Operational Capability  
XDR: Extended Data Rate

■ Concept activities  
■ Production / fielding

■ Design / development  
■ Operations / sustainment

■ Integration / test  
△◇ Key events

UNCLASSIFIED

<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0303131F Minimum Essential Emergency Communications Network (MEECN)</b>	<b>PROJECT NUMBER AND TITLE</b> <b>4610 Minuteman MEECN Program Upgrade (MMPU)</b>
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<b>(U) <u>Schedule Profile</u></b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Award MMP Upgrade Program System Development & Demonstration (SDD)	2Q		
(U) Continue SDD	2-4Q	1-4Q	1-4Q
(U) Integration and Test			1-4Q

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>					PE NUMBER AND TITLE <b>0303131F Minimum Essential Emergency Communications Network (MEECN)</b>			PROJECT NUMBER AND TITLE <b>5047 Ground Element MEECN System (GEMS)</b>		
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5047 Ground Element MEECN System (GEMS)	58.094	38.648	56.142	0.000	0.000	0.000	0.000	0.000	0.000	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

Ground Element MEECN Systems (GEMS) will be comprised of EHF/AEHF, VLF/LF, HF, UHF and Aircrew Alerting components and will provide secure, survivable inter-site, intra-site and mobile communications to bomber, tanker, reconnaissance and other communications facilities with strategic responsibilities. GEMS terminals will be developed and fielded to replace strategic mobile and fixed-site Single Channel Anti-jam Man-Portable (SCAMP) terminals. GEMS will also replace the Aircraft Alerting Communications Electromagnetic Pulse System/Electromagnetic Pulse Hardened Dispersal Communications (AAACE/EHDC) systems.

- GEMS' primary mission is to provide strategic Wing Command Posts and mobile support teams survivable communication paths to receive EAMs and Force Management messages from Nuclear Command and Control (NC2) nodes and disseminate them to bomber, tanker, and recce aircrews, as specified by OPLAN 8044.

- GEMS will provide solutions to existing capability shortfalls for NC2 and has significant potential to provide distributed and transportable command and control capabilities beyond the traditional NC2 mission - GEMS is the last line of operational comm when all other peacetime links fail.

This program is in Budget Activity 07, Operational System Development, because it supports work on fielded operating weapon systems.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) System Development and Demonstration (SDD) contract to include: EHF, VLF, HF and UHF terminal integration; EHF, VLF, HF and UHF modem design; cryptographic upgrade; weapon system hardness analysis; EHF, VLF, HF and UHF hardware development; EHF, VLF, HF and UHF software development; analysis of power and cooling requirements, antenna integration, analysis of Software Compliant Architecture (SCA); and pager/klaxon system development.	52.490	32.976	49.883
(U) Analytical Support	5.604	5.672	6.259
(U) Total Cost	58.094	38.648	56.142

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U)										

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0303131F Minimum Essential  
Emergency Communications Network  
(MEECN)

PROJECT NUMBER AND TITLE

5047 Ground Element MEECN System  
(GEMS)(U) D. Acquisition Strategy

Two Concept and Technology Demonstration (C&TD) contracts were awarded to separate vendors following full and open competition. Rockwell Collins of Cedar Rapids, IA was awarded the SDD (CPAF) and production contract on 23 June 2005.

UNCLASSIFIED

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE						PROJECT NUMBER AND TITLE		
<b>07 Operational System Development</b>				<b>0303131F Minimum Essential Emergency Communications Network (MEECN)</b>						<b>5047 Ground Element MEECN System (GEMS)</b>		
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
SDD Contract	CPAF	Rockwell Collins, IA	86.822	52.490	Oct-07	32.976	Dec-08	49.883	Dec-09	Continuing	TBD	TBD
Subtotal Product Development			86.822	52.490		32.976		49.883		Continuing	TBD	TBD
Remarks:												
(U) <u>Support</u>												
Engineering and Acquisition Support	Various	Various	6.673	2.482	Dec-07	1.440	Dec-08	3.000	Dec-09	Continuing	TBD	TBD
MITRE	MIPR	Bedford, MA	4.081	2.124	Oct-07	1.230	Oct-08	2.300	Oct-09	Continuing	TBD	TBD
PMA			1.410	0.468	Dec-07	0.980	Dec-08	0.600	Dec-09	Continuing	TBD	TBD
Subtotal Support			12.164	5.074		3.650		5.900		Continuing	TBD	TBD
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
Various	Various	Various	0.785	0.530	Mar-08	2.022	Mar-09	0.359	Mar-10	Continuing	TBD	TBD
Subtotal Test & Evaluation			0.785	0.530		2.022		0.359		Continuing	TBD	TBD
Remarks:												
(U) <u>Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			99.771	58.094		38.648		56.142		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

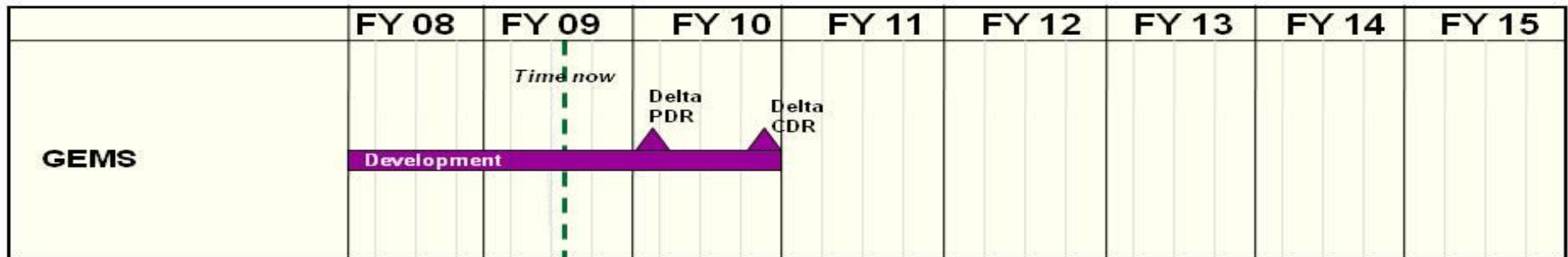
May 2009

BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0303131F Minimum Essential  
Emergency Communications Network  
(MEECN)

PROJECT NUMBER AND TITLE  
5047 Ground Element MEECN System  
(GEMS)

## GEMS Schedule



WST: Weapons System Test  
DT/OT: Combined Developmental and Operational Testing  
LDR: Low Data Rate

IOC: Initial Operational Capability  
FOC: Full Operational Capability  
XDR: Extended Data Rate

■ Concept activities  
■ Production / fielding

■ Design / development  
■ Operations / sustainment

■ Integration / test  
△◇ Key events

Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0303131F Minimum Essential  
Emergency Communications Network  
(MEECN)

PROJECT NUMBER AND TITLE

5047 Ground Element MEECN System  
(GEMS)

(U) Schedule Profile

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) SDD	1-4Q	1-4Q	1-4Q
(U) PDR			1Q
(U) CDR			4Q



**UNCLASSIFIED**

PE NUMBER: 0303140F  
 PE TITLE: Information Systems Security Program

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0303140F Information Systems Security Program</b>
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	178.671	189.956	196.621	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
4579 Adv Security Solutions & Technologies (ASST)	3.100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.100
4861 AF Electronic Key Management System (AF EKMS)	5.223	4.272	2.695	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5100 Cryptographic Modernization	142.575	156.687	170.893	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5231 AF Key Management Infrastructure (AF KMI)	4.130	8.602	15.567	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
7820 Computer Security RDT&E: Firestarter	23.643	20.395	7.466	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

**(U) A. Mission Description and Budget Item Justification**

The overall focus of the RDT&E efforts within this program is two-fold. Focus one is to provide the capability to protect and defend USAF Command, Control, Communications, Computers, and Intelligence, Surveillance, and Reconnaissance (C4ISR) and Weapon Systems from Information Warfare (IW) attacks and to ensure their recovery from such attacks. To this end, the project does research and development of information protection tools and transitions them to operational systems. Focus two is transforming electronic key delivery and DoD cryptographic devices to meet the next generation warfighting requirements. This includes: 1) a totally "man-out-of-the-loop" electronic crypto key distribution system -- from the actual generation of the key in the Key Processor all the way into the using End Crypto Unit (ECU) -- thus eliminating the current key vulnerability to compromise by individuals transporting or loading key; and 2) an inventory of cryptographic devices that requires less quantities since they are more robust, stronger, able to communicate extremely large amounts of data at greatly increased data rates, be upgraded more easily and less expensively, and are net-centric and Global Information Grid-compatible.

This program is in budget activity 7, Operational System Development, because it addresses the development and transition of information security, protection and defensive capabilities and technologies.

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0303140F Information Systems Security Program

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	186.255	187.933	199.627
(U) Current PBR/President's Budget	178.671	189.956	196.621
(U) Total Adjustments	-7.584	2.023	
(U) Congressional Program Reductions		-0.660	
Congressional Rescissions		-0.517	
Congressional Increases		3.200	
Reprogrammings	-2.926		
SBIR/STTR Transfer	-4.658		

(U) **Significant Program Changes:**

In FY09 Congress added \$3.2M for Remote Suspect Identification - these funds will be executed in Project 677820, Computer Security RDT&E: Firestarter.

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>				PE NUMBER AND TITLE <b>0303140F Information Systems Security Program</b>				PROJECT NUMBER AND TITLE <b>4579 Adv Security Solutions &amp; Technologies (ASST)</b>			
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total	
4579 Adv Security Solutions & Technologies (ASST)	3.100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.100	
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0			

**(U) A. Mission Description and Budget Item Justification**

Project 674579, Advanced Security Solutions and Technologies, was originally established to develop defensive information warfare solutions for AF Command and Control (C2), Intelligence, Surveillance, and Reconnaissance (ISR) systems. The AF funding for Project 674579 was terminated in FY05. However, the Project remains active because of Congressional adds in FY05, FY06 and FY07. In FY08 the project line received two Congressional adds: one for the continuing Cybersecurity Defend and Attack Exercise in San Antonio, TX; another for an expansion of that effort to the Great Falls, MT location, entitled Montana Cybersecurity Defend and Attack Exercise.

The Center for Infrastructure Assurance and Security (CIAS) at the University of Texas at San Antonio (UTSA) has multiple funding sources, and is a multidisciplinary information assurance research and development, academic, and operationally-based program. It brings AF, academic, and civilian expertise to create a joint approach to technical and policy issues, civil threat information collection and reporting, as well as conducting joint military base/local civil agency Cybersecurity Defend and Attack Exercises. The aim of the work is to determine the degree of reliance of military establishments on locally-operated services, how military bases and posts currently participate in testing the local critical infrastructures, and how they would participate and respond to attacks to local critical infrastructure.

This project is in Budget Activity 7, Operational System Development, because it addresses the development and transition of information security, protection, and defensive capabilities and technologies.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Managed the Cybersecurity Defend and Attack Exercise (Congressional Add)	2.300		
(U) Managed the Montana Cybersecurity Defend and Attack Exercise (Congressional Add)	0.800		
(U) Total Cost	3.100	0.000	0.000

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) N/A										

**(U) D. Acquisition Strategy**

Congressional adds are for a specific on-going effort being done for AFISRA under the Center for Infrastructure Assurance and Security Program (CIAS) at University of Texas at San Antonio; and an extension of that effort to be conducted in Great Falls, MT. The extension effort will also be done for AFISRA by the CIAS Program.

UNCLASSIFIED

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>07 Operational System Development</b>				<b>0303140F Information Systems Security Program</b>					<b>4579 Adv Security Solutions &amp; Technologies (ASST)</b>			
<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> Cybersecurity Defend and Attack Exercise (Congressional Add)	FY03 Information Warfare Broad Area Announcem ent (IW BAA) Grant Amendment	University of TX San Antonio, San Antonio, TX	4.042	2.300	Oct-08	0.000		0.000		0.000	6.342	6.342
Montana Cybersecurity Defend and Attack Exercises (Congressional Add)	FY03 Information Warfare Broad Area Announcem ent (IW BAA) Grant Amendment	FY03 Information Warfare Broad Area Announcement (IW BAA) Grant Amendment	0.000	0.800	Oct-08	0.000		0.000		0.000	0.800	0.800
Subtotal Product Development			4.042	3.100		0.000		0.000		0.000	7.142	7.142
Remarks:												
(U) Total Cost			4.042	3.100		0.000		0.000		0.000	7.142	7.142

Exhibit R-4, RDT&E Schedule Profile

DATE  
May 2009

BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0303140F Information Systems Security Program

PROJECT NUMBER AND TITLE  
4579 Adv Security Solutions & Technologies (ASST)



# ISSP BPAC 674579: ASST Program Schedule

	FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY15
Cybersecurity Defend and Attack Exercise	▲ ■ ▲							
Montana Cybersecurity Defend and Attack Exercise	▲ ■ ▲							

■ Design / development    ▲ Initiate/Complete    ▲ Spiral Release    ◆ Key events

**PB10 R-Docs**

Depicted by installation/production flow

1

Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0303140F Information Systems Security Program

PROJECT NUMBER AND TITLE

4579 Adv Security Solutions & Technologies (ASST)

(U) Schedule Profile

FY 2008

FY 2009

FY 2010

(U) Managed the Cybersecurity Defend and Attack Exercise

1-4Q

(U) Managed the Montana Cybersecurity Defend and Attack Exercise

1-4Q

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> 07 Operational System Development	<b>PE NUMBER AND TITLE</b> 0303140F Information Systems Security Program	<b>PROJECT NUMBER AND TITLE</b> 4861 AF Electronic Key Management System (AF EKMS)
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
4861 AF Electronic Key Management System (AF EKMS)	5.223	4.272	2.695	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

The AFEKMS Program consists of multiple developments supporting the Air Force requirements/portion of the DoD EKMS Program. (The National Security Agency [NSA] acts as the Executive Agency for the DoD EKMS Program.) AFEKMS, in concert with the overarching DoD EKMS Program, provides a secure and flexible capability for the electronic generation, distribution, accounting, and management of key material, voice callwords, and communications security (COMSEC) publications for the current generation of DoD Command, Control, Communications, Computers, and Intelligence (C4I) and for the current generation of weapon systems. EKMS replaced the previous manual distribution and management system providing cryptographic keying material for U.S. DoD Information Assurance. Information Assurance emphasizes confidentiality, access control, multi-level secure databases, trusted computing and information integrity. AFEKMS has a three-tier hierarchical structure. This tiered structure provides 'wholesale' to 'retail' to 'consumer' capability to distribute, manage and account for COMSEC keying material. Tier 1 installations comprise the wholesale generation and control capability. Tier 2 installations comprise the local distribution network and Tier 3 comprises the retail capability where keying material leaves the AFEKMS and enters the consumer End Cryptographic Units (ECUs).

EKMS improved protection of national security-related information by substantially enhancing confidentiality, integrity, and non-repudiation characteristics over the legacy manual key management systems. EKMS has and continues to greatly accelerate availability of crypto key materials through electronic transmission versus the manual handling and shipping of materials. While the current EKMS level-of-effort is directed at enhancing current and developing systems, the ultimate goal is for it to provide a temporary bridge to the DoD Key Management Infrastructure (KMI) Capability Increment (CI)-2, and then a migration path to the "full-up" KMI CI-3. Once KMI CI-3, with its advanced key generation/key distribution capability is fielded and operational, KMI interfaces to EKMS will be severed. DoD KMI has incurred schedule slips. As a result, the AFEKMS Program continues software development to support emerging requirements during the transition period to KMI. Initially, End User Application Software development represented Tier 2 requirements. The KMI fielding delays warranted combining Tier 2 and Tier 3 development projects as the transition period extended. End User Application Software development was completed with the DMD PS 5.0. release. CUAS, DMD and related computer based training continues under Tier 2/3 development for emerging requirements in the FYDP. Activities also include studies and analysis to support both current program planning and execution and future program planning.

This project is in Budget Activity 7, Operational System Development, because it addresses the development and transition of information security, protection, and defensive capabilities and technologies.

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0303140F Information Systems Security Program</b>	<b>PROJECT NUMBER AND TITLE</b> <b>4861 AF Electronic Key Management System (AF EKMS)</b>
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<b>(U) B. Accomplishments/Planned Program (\$ in Millions)</b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
<b>(U)</b> Continue program office contract support to the AFEKMS Program for planning and migration to KMI: upgrade/improvements to the EKMS necessary to support the capabilities needed to bridge transition to the Key Management Infrastructure (KMI); EKMS continued deployment (Phase 5); interface and integration of key management into weapon systems; and tech refresh	0.625	0.593	0.273
<b>(U)</b> Completed End User Application Software Development, Data Management Device (DMD) v5.0 release.	1.341	0.000	0.000
<b>(U)</b> Tier 2/3 Development for emerging requirements: Mission support for ECUs, weapon systems and fill device user software pending transition to KMI to include the continuation of CUAS and DMD software development and associated computer based training.	3.257	3.679	2.422
<b>(U)</b> Total Cost	5.223	4.272	2.695

<b>(U) C. Other Program Funding Summary (\$ in Millions)</b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to Complete</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>		
<b>(U)</b> AF Other Procurement PE 0303140F	9.984	7.021	21.094	16.199	21.613	22.040	22.481	22.930	Continuing	TBD
Note: This line includes both AFEKMS and AF KMI Other Procurement (3080) funding.										

**(U) D. Acquisition Strategy**  
All major contracts within this Project are open to full and open competition with technology knowledge, expertise, and prior experience on similar projects weighted heavily in the evaluation process.



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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0303140F Information Systems Security Program</b>	<b>PROJECT NUMBER AND TITLE</b> <b>4861 AF Electronic Key Management System (AF EKMS)</b>
--	--	--

<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
<u>(U) Product Development</u>												
AFEKMS Program office contractor support for planning and migration to KMI	CPFF	Mitre, San Antonio, TX	4.667	0.625	Jan-08	0.593	Jan-09	0.273	Jan-10	Continuing	TBD	TBD
Complete End User Application Software Development	T&M	SAIC, San Diego, CA	14.936	1.341	Jan-08	0.000		0.000		0.000	16.277	16.277
Tier 2/3 Development for emerging requirements (CUAS, DMD & CBT).	T&M	SAIC, San Diego, CA	0.000	3.257	Jan-08	3.679	Jan-09	2.422	Jan-10	Continuing	TBD	TBD
Subtotal Product Development			19.603	5.223		4.272		2.695		Continuing	TBD	TBD
Remarks:												
<u>(U) N/A</u>												
<u>(U) Total Cost</u>			19.603	5.223		4.272		2.695		Continuing	TBD	TBD
Remarks:	N/A											

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

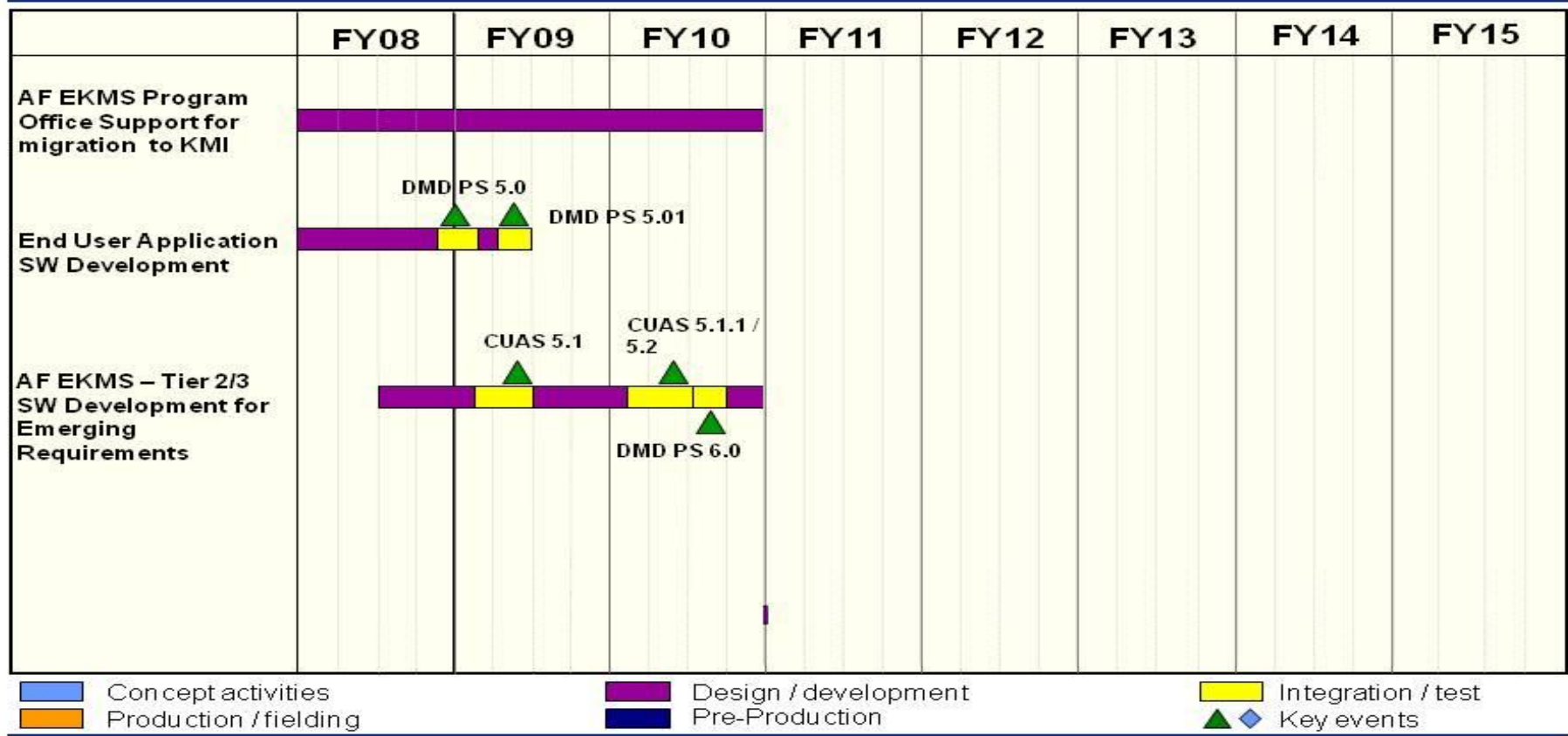
BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0303140F Information Systems Security Program

PROJECT NUMBER AND TITLE  
4861 AF Electronic Key Management System (AF EKMS)



# ISSP BPAC 674861: AFEKMS Program Schedule



PB10 R-Docs

Depicted by installation/production flow

1

**UNCLASSIFIED**

<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0303140F Information Systems Security Program</b>	<b>PROJECT NUMBER AND TITLE</b> <b>4861 AF Electronic Key Management System (AF EKMS)</b>
--	--	--

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) <b><u>Schedule Profile</u></b>			
(U) AFEKMS Program office contractor support for planning and migration to KMI	1-4Q	1-4Q	1-4Q
(U) Complete End User Application Software Development	1-4Q	1-2Q	
(U) Tier 2/3 Development for emerging requirements (CUAS, DMD and computer based training)	3-4Q	1-4Q	1-4Q

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>				<b>PE NUMBER AND TITLE</b> <b>0303140F Information Systems Security Program</b>				<b>PROJECT NUMBER AND TITLE</b> <b>5100 Cryptographic Modernization</b>			
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total	
5100 Cryptographic Modernization	142.575	156.687	170.893	0.000	0.000	0.000	0.000	0.000	Continuing	TBD	
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0			

NOTE:  
In FY10, Key Management Equipment Modernization (KMEM) concept refinement and development transfers to ISSP Project 675231, AF KMI, for integral KMI development. The KMEM project develops the KOV-21 follow-on crypto engine that will be utilized with the KMI "next generation fill device" under development.

**(U) A. Mission Description and Budget Item Justification**

The Cryptographic Modernization Program modernizes cryptographic devices protecting critical information vital to successful mission operations and national security. In September 2000, the Defense Review Board (DRB) tasked NSA to evaluate the security posture of the cryptographic inventory. Systems with aging algorithms, those approaching non-sustainability, and those generally incompatible with modern key management systems were identified. Priority systems that required immediate replacement were also identified. In addition, NSA documented the need to modernize the cryptographic inventory with capabilities designed to enable network-centric operations. Replacements/Modernization of the near term vulnerable systems must occur within the timeframe specified in Chairman Joint Chiefs of Staff Notice (CJCSN) 6510. The DoD Cryptographic Modernization Program was established to develop a modern cryptographic base that provides assured security robustness, interoperability, advanced algorithms, releasability, programmability, and compatibility with the future Key Management Infrastructure (KMI). The program supports the transformation to next generation cryptographic capabilities providing U.S. forces and multinational and interagency partners the security needed to protect the flow and exchange of operational decision making information IAW national and international policy/standards, the validated operational requirements of the warfighters, and the Intelligence Communities.

The Cryptographic Modernization Program is a collection of projects accomplished in three phases: Replacement, Modernization, and Transformation. The Replacement Phase of the program focused on updating and/or replacing out-of-date algorithms along with unsustainable cryptographic products. The Modernization Phase provides a common solution to existing multiple cryptographic end items, as well as updating mid-term aging/unsupportable crypto equipment. Manpower and logistics requirements will be reduced and manpower efficiencies gained, while incremental capability enhancements and footprint reduction are provided. The third phase of the Cryptographic Modernization Program, Transformation, provides common joint solutions which enable network-centric capabilities and seamless crypto that is transparent to the user. Activities also include studies and analysis to support both current program planning and execution and future program planning.

This project is in Budget Activity 07, Operation System Development, because it addresses the development and transition of information security, protection, and defensive capabilities and technologies.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Continue KG-3X Cryptographic Modernization development and test efforts of replacement crypto devices	19.879	15.910	6.378
(U) Complete IFF Mode 5 Crypto development and testing	12.699	0.734	0.000
(U) Continue F-22 Multi-Function Crypto (Crypto Mod of KOV-50) Development	0.008	9.024	11.634
(U) Continue Remote Rekey (CI-33, formerly CI-13) Cryptographic Modernization Development	3.429	12.434	26.983

**UNCLASSIFIED**

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>May 2009</b>
--	-------------------------

<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0303140F Information Systems Security Program</b>	<b>PROJECT NUMBER AND TITLE</b> <b>5100 Cryptographic Modernization</b>
--	--	--

<b>(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Continue Studies and Analyses (includes SPO Support, CMPO Assessments, Engineering Support, and Crypto Transformation Initiative [includes-Dynamic Group Keying, Multi-Level Security {MLS}, Airborne Link Encryption Family (LEF), and software based encryption])	33.856	29.237	15.825
(U) Break out Space Cryptographic Modernization in FY10	32.201	43.067	0.000
(U) Continue Space Telemetry Tracking and Commanding (includes Aerospace Vehicle Equipment[AVE], KS-327, and Ground Operating Equipment [GOE], Increment 1, KG -252 concept development [Increment 1] and analysis and concept refinement [Increment 2])	0.000	0.000	10.523
(U) Continue Space Mission Data concept development	0.000	0.000	45.145
(U) Continue KM Equipment Modernization (KMEM) concept refinement and development (transfer to ISSP BPAC 675231, AF KMI, in FY10 for integral KMI development)	6.283	0.000	0.000
(U) Continue KOK-23 (formerly KOK-13) Combat Key Generator Development	9.063	6.759	0.000
(U) Continue VINSON/ANDVT Cryptographic Modernization (VACM) concept refinement and development (Includes Stand Alone Development and Testing and Embedded Concepts Studies)	3.698	12.013	32.787
(U) Discontinued Link-16 Encryption Modernization (LSEM) Technical Support	0.000	0.000	0.000
(U) Discontinued Range Telemetry Encryption Modernization (RTEM) in FY08	0.241	0.000	0.000
(U) Continue Secure Crypto Enterprise Management (SCEM) Standards Development	0.126	0.211	0.000
(U) Continue Advanced Common Crypto Modernization analysis and development (includes Smart Munitions,SCEM II, High Speed Crypto and Programmable Objective Encryption Technologies [POET] Type-1 Data At Rest); Smart Munitions paused due to lack of current requirements.	21.092	27.298	21.618
(U) Total Cost	142.575	156.687	170.893

<b>(U) <u>C. Other Program Funding Summary (\$ in Millions)</u></b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) AF Other Procurement PE 0303140F	45.502	32.688	63.371						Continuing	TBD

**(U) D. Acquisition Strategy**  
 The Crypto Modernization portfolio of component acquisition projects are executing using a variety of approaches that vary from an evolutionary acquisition strategy using spiral development (for new component development) to incremental improvement leveraging leading-edge, certified non-developmental items (for modernization). Contract type is selected for each of the individual projects based upon its acquisition approach and its unique technology risks. A mixture of fixed-price and cost-reimbursement contracts have been selected which maximize the best value for the Government.

**Exhibit R-2a, RDT&E Project Justification**

DATE

**May 2009**

BUDGET ACTIVITY

**07 Operational System Development**

PE NUMBER AND TITLE

**0303140F Information Systems  
Security Program**

PROJECT NUMBER AND TITLE

**5100 Cryptographic Modernization**

Program Support Administration (PMA) costs are defined as those direct, unique program costs, other than payroll costs for government personnel, which are required for operation of a program office and its management and oversight role. These include costs such as Advisory and Assistance Service (A&AS) (SCS, PASS, ETASS, FFRDC) contracted support to a program office. Under PMA, A&AS personnel support the functions of government personnel in managing a weapon system or common item.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE				
<b>07 Operational System Development</b>				<b>0303140F Information Systems Security Program</b>					<b>5100 Cryptographic Modernization</b>				
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>	
(U) <u>Product Development</u> KG-3X	MIPRed to 639th ELSS/KM. ESC puts on a CPAF contract	CPSG/ZX, Lackland, AFB, TX	16.502	18.720	Jan-08	13.450	Jan-09	5.825	Jan-10	0.000	54.497	54.497	
IFF Mode 5 Crypto	CPSG puts on two CPFF contracts.	CPSG/ZC, Lackland AFB, TX	36.384	8.991	Aug-08	0.633		0.000		0.000	46.008	46.008	
F-22/ Multi Function Crypto (KOV -50)	MIPRed to ASC/YF. ASC puts on F-22 contract.	ASC/YFAA F-22 SPO, Wright Patterson AFB, OH	2.889	0.000		9.000	Feb-09	11.610	Jan-10	Continuing	TBD	TBD	
Remote Rekey (CI-33)	CPSG will put on a FFP contract	CPSG/ZC, Lackland AFB, TX	6.331	2.546	Aug-08	9.476	Oct-09	23.194	Nov-10	Continuing	TBD	TBD	
KM Equipment Modernization (KMEM) development (continued under ISSP BPAC 675231, AF KMI in FY10).	CPSG placed on a T&M Contract	CPSG/NI, Lackland AFB, TX	1.853	6.283	Feb-08	0.000	Feb-09	0.000		0.000	8.136	8.136	
Combat Key Generator (KOK-23A)	CPSG placed on two CPIF Contracts	CPSG/ZC, Lackland AFB, TX	5.690	8.072	Nov-08	4.095	Nov-09	0.000		0.000	17.857	17.857	
VINSON/ANDVT Cryptographic Modernization	CPSG placed on CPFF Contracts	CPSG/ZC, Lackland AFB, TX	4.765	3.651	Feb-08	9.222	Feb-09	30.778	Feb-10	Continuing	TBD	TBD	
Range Telemetry Encryption Modernization (RTEM) (Discontinued in FY09)	N/A	CPSG/ZC, Lackland AFB, TX	3.345	0.000	Feb-08	0.000		0.000			3.345	3.345	
* Studies and Analyses (includes SPO Support, CMPO Assessment, Engineering Support, and CTL.	CPSG puts on three T&M contracts	CPSG/ZX, Lackland AFB, TX	57.512	20.312	Jan-08	21.749	Jan-09	7.170	Feb-10	Continuing	TBD	TBD	

R-1 Line Item No. 173

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Project 5100

Exhibit R-3 (PE 0303140F)

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Exhibit R-3, RDT&E Project Cost Analysis										DATE		
										May 2009		
BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE				
<b>07 Operational System Development</b>				<b>0303140F Information Systems Security Program</b>				<b>5100 Cryptographic Modernization</b>				
Space Crypto Mod (following two Projects broken out after FY09)	CPSG puts on three CPFF contracts	CPSG/ZJ, Lackland AFB, TX	42.226	29.146	Jan-08	30.123	Jan-09	0.000	0.000	101.495	101.495	
Space Telemetry, Tracking & Commanding Crypto Mod	CPSG will put on two CPFF contracts	CPSG/ZJ, Lackland AFB, TX	0.000	0.000		0.000		6.882	Jan-10	Continuing	TBD	TBD
Space Mission Data Crypto Mod	CPSG will put on a CPFF contract	CPSG/ZJ, Lackland AFB, TX	0.000	0.000		0.000		41.227	Jan-10	Continuing	TBD	TBD
Secure Crypto Enterprise Management (SCEM)	CPSG MIPRs funds to NSA to put on contract	CPSG/ZX, Lackland AFB, TX	2.881	0.125		0.211		0.000		0.000	3.217	3.217
Link 16 Encryption Modernization (LSEM)	N/A	N/A	0.000	0.000		0.000		0.000		0.000	0.000	0.000
Advanced Common Crypto Modernization analysis and development (includes High Speed Crypto, and POET)	CPSG puts on CPFF contracts	CPSG/ZX, Lackland AFB, TX	8.912	17.417	Feb-08	26.325	Feb-09	21.286	Feb-10	Continuing	TBD	TBD
Subtotal Product Development			189.290	115.263		124.284		147.972		Continuing	TBD	TBD
Remarks:	<p>* Early efforts within the AF CM Program to scope requirements, determine work needed to provide modernization and/or transformation solutions, consider viable solutions, etc. are considered "in-house efforts" and labeled "CM Initiatives". If no requirements are found or work already underway will provide a solution, the initiative is closed out. Some initiatives will point to a common solution, and be merged to form and initiate a new CM project. For some initiatives, individual solutions will be able to be crafted within on-going projects, and the work under the initiative will be dispersed across on-going or newly initiated projects.</p> <p>Note: R-3 has been updated to reflect current Project Requirements and latest EACs.</p>											
(U) <u>Program Management Administration (PMA)</u>												
Program management Administration	Various	Various		17.476		17.722		15.231		Continuing	TBD	TBD
Subtotal Program Management Administration (PMA)			0.000	17.476		17.722		15.231		Continuing	TBD	TBD
Remarks:												
(U) <u>Test and Evaluation (T&amp;E)</u>												
KG-3X				0.659		0.849		0.000			1.508	1.508
IFF				3.708		0.076		0.000			3.784	3.784
Remote Rekey (CI-33)				0.883		0.987		2.236		Continuing	TBD	TBD
Combat Key Generator KOK-23				0.991		1.727		0.000			2.718	2.718
VINSON/ANDVT Crypto Mod				0.040		0.147		0.525		Continuing	TBD	TBD
Space Crypto Mod				3.055		4.922		0.000			7.977	7.977
Space TT&C				0.000		0.000		1.937		Continuing	TBD	TBD
Space MD				0.000		0.000		2.792		Continuing	TBD	TBD
SCEM				0.000		0.000		0.200		Continuing	TBD	TBD

R-1 Line Item No. 173

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Project 5100

Exhibit R-3 (PE 0303140F)



**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY		PE NUMBER AND TITLE			PROJECT NUMBER AND TITLE		
<b>07 Operational System Development</b>		<b>0303140F Information Systems Security Program</b>			<b>5100 Cryptographic Modernization</b>		
Advanced Common Crypto Mod		0.000	0.973	0.000	Continuing	TBD	TBD
Subtotal Test and Evaluation (T&E)	0.000	9.336	9.681	7.690	Continuing	TBD	TBD
Remarks:							
(U) <u>Government Furnished Equipment (GFE)</u>							
KG-3X GFE		0.500	5.000	0.000	Continuing	TBD	TBD
Subtotal Government Furnished Equipment (GFE)	0.000	0.500	5.000	0.000	Continuing	TBD	TBD
Remarks:							
(U) Total Cost	189.290	142.575	156.687	170.893	Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE  
May 2009

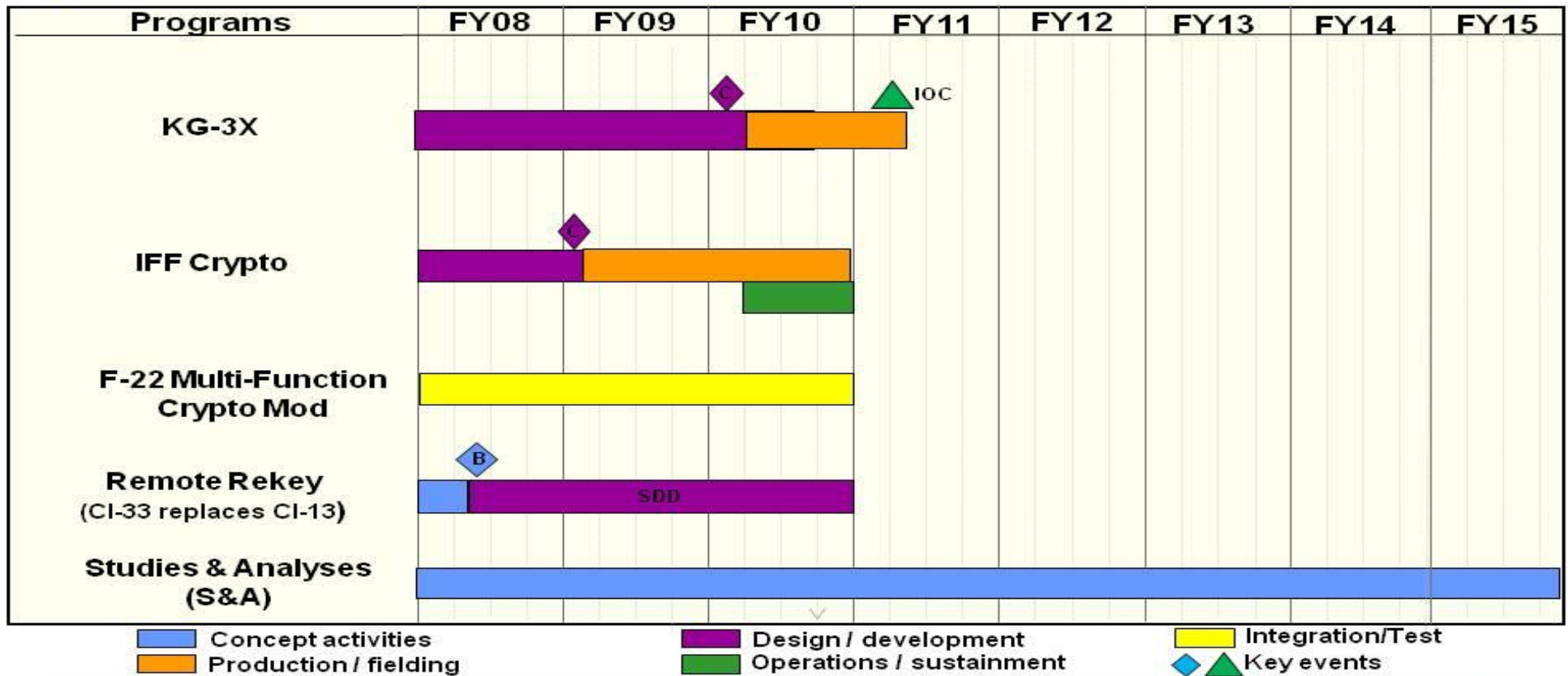
BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0303140F Information Systems Security Program

PROJECT NUMBER AND TITLE  
5100 Cryptographic Modernization



*ISSP BPAC 675100: Crypto Mod Program Schedule (p 1 of 3)*



PB10 R-Docs

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

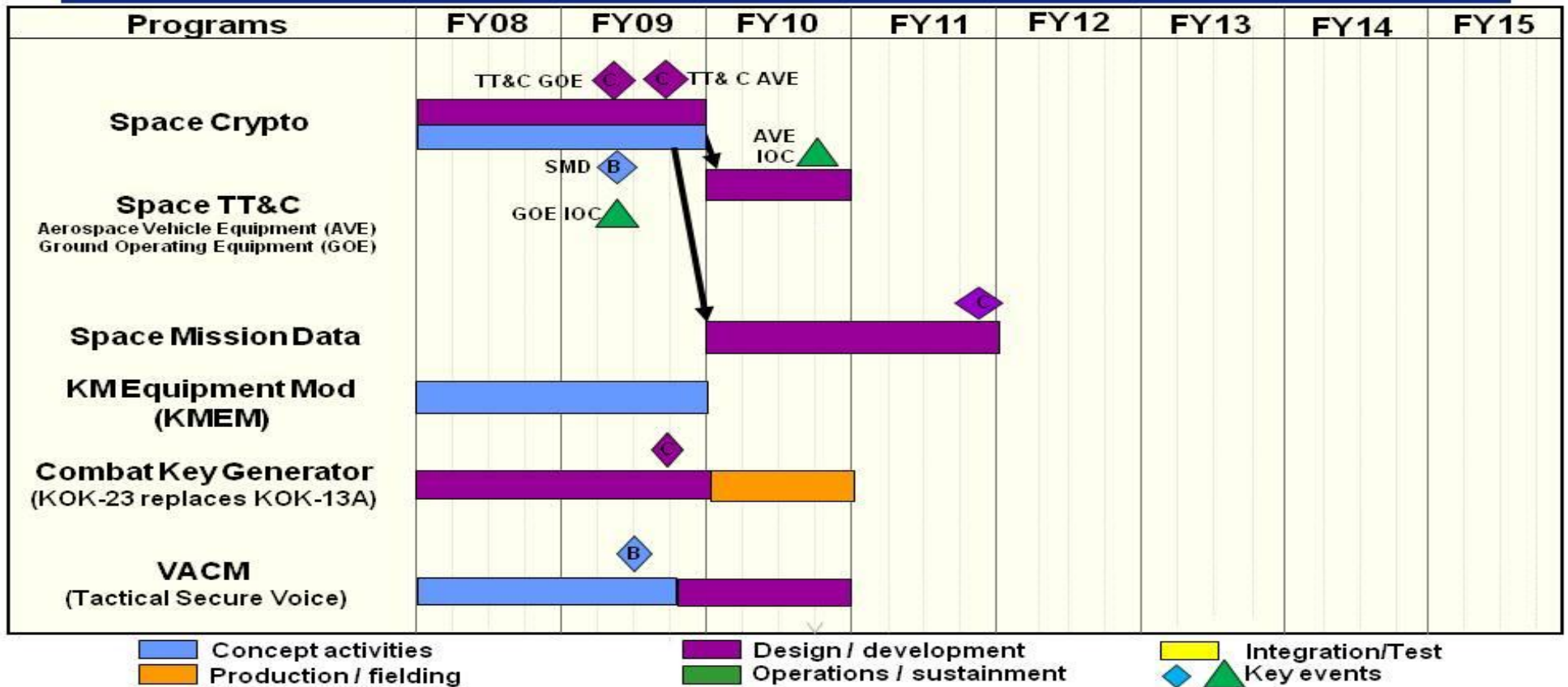
BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0303140F Information Systems Security Program

PROJECT NUMBER AND TITLE  
5100 Cryptographic Modernization



# ISSP BPAC 675100: Crypto Mod Program Schedule (p 2 of 3)



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Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

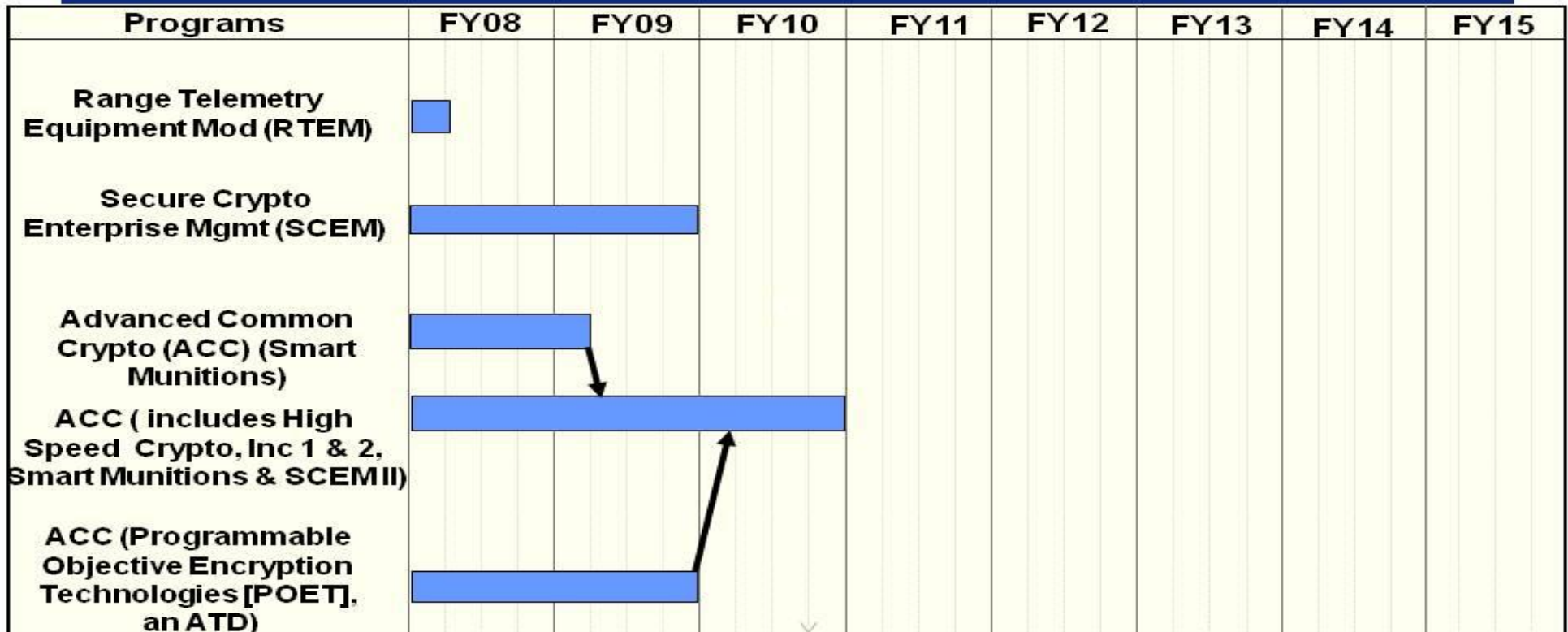
BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0303140F Information Systems Security Program

PROJECT NUMBER AND TITLE  
5100 Cryptographic Modernization



# ISSP BPAC 675100: Crypto Mod Program Schedule (p 3 of 3)



■ Concept activities  
■ Production / fielding

■ Design / development  
■ Operations / sustainment

■ Integration/Test  
◆ Key events

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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0303140F Information Systems Security Program</b>	<b>PROJECT NUMBER AND TITLE</b> <b>5100 Cryptographic Modernization</b>
--	--	--

<b>(U) <u>Schedule Profile</u></b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Continue KG-3X CM development and test efforts (rebaselined Dec07)	1-4Q	1-4Q	1-2Q
(U) Complete IFF Mode 5 Crypto development and testing	1-4Q		
(U) Continue F/A-22 Multi Function Crypto (CM development of KOV-50)	1-4Q	1-4Q	1-4Q
(U) Continue Remote Rekey (replacement for CI-13) CM concept refinement and development	1-4Q	1-4Q	1-4Q
(U) Continue Studies and Analyses (includes SPO support, CM PM Reserves, Engineering Support, and Crypto Transformation Initiative.	1-4Q	1-4Q	1-4Q
(U) Breakout Space CM in FY10: (The following two projects broken out after FY09	1-4Q	1-4Q	
(U) Continue Space Telemetry Tracking and Commanding (Includes Aerospace Vehicle Equipment [AVE] KS-327, and Ground Operating Equipment [GOE], KG-252) concept development [Increment 1] and analysis and concept refinement [increment 2]			1-4Q
(U) Continue Space Mission Data concept development			1-4Q
(U) Continue KM Equipment Modernization (KMEM) development	1-4Q	1-4Q	
(U) Continue Combat Key Generator (replacement for KOK-13A) concept refinement and development	1-4Q	1-3Q	
(U) Continue VINSON-ANDVT Cryptographic Modernization (VACM) concept refinement and development (Includes Stand Alone and Embedded Concept Studies)	2-4Q	1-4Q	
(U) Discontinued Range Telemetry Encryption Modernization (RTEM) (alternative solution revealed)	1Q		
(U) Continue Secure Crypto Enterprise Management (SCEM)	1-4Q	1-4Q	
(U) Continue Advanced Common Crypto Modernization analysis and development (includes High Speed Crypto and Programmable Objective Encryption Technologies [POET]; Smart Munitions paused due to lack of current requirements) Common Crypto Engines/Modules, and Smart Munitions)	1-4Q	1-4Q	1-4Q

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

May 2009

BUDGET ACTIVITY		PE NUMBER AND TITLE						PROJECT NUMBER AND TITLE		
<b>07 Operational System Development</b>		<b>0303140F Information Systems Security Program</b>						<b>5231 AF Key Management Infrastructure (AF KMI)</b>		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5231 AF Key Management Infrastructure (AF KMI)	4.130	8.602	15.567	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	37	50	10	0	0	0	0	0		

## NOTE:

In FY10, the Key Management Equipment Modernization (KMEM) concept refinement and development effort transfers from ISSP Project 675100, Cryptographic Modernization, to Project 675231, AF KMI, for integral KMI development. The KMEM project develops the KOV-21 follow-on crypto engine that will be utilized with the KMI "next generation fill device" under development.

(U) **A. Mission Description and Budget Item Justification**

The Air Force Key Management Infrastructure (AF KMI) Program consists of multiple developments supporting the AF requirements/portion of the DoD Key Management Infrastructure (KMI). (The National Security Agency [NSA] acts as the Executive Agency for the DoD KMI Program.) AF KMI, in concert with this overarching DoD KMI Program, will provide a secure and flexible capability for the electronic generation, distribution, accounting, and management of: key material; voice callwords; and communications security (COMSEC) publications for all DoD Command, Control, Communications, Computers, and Intelligence (C4I) and for the Services' weapon systems. KMI represents a broad-scale replacement of the current Electronic Key Management System (EKMS). The new KMI will provide capabilities that will allow networked operation in consonance with the Global Information Grid (GIG) and other DoD, fellow Service, and AF enterprise objectives. It thereby will assure a viable support infrastructure for future weapons and C4I programs to incorporate key management into their system designs.

The AF Key Management Infrastructure (KMI) Program's R&D efforts will include: building the AF KMI architecture; defining all of its linkages; building the linkage interfaces that will allow them to communicate; and other "last mile" development. (See NOTE below for detailed explanation of the "last mile" work.) Activities also include studies and analysis to support both current program planning and execution and future program planning.

The DoD KMI will greatly improve protection of national, security-related information by substantially enhancing confidentiality, integrity, and non-repudiation characteristics over the legacy EKMS key management system. KMI will greatly accelerate the availability of crypto key materials through electronic transmission versus shipping of materials, will enhance mission responsiveness and flexibility, and will take the man "out-of-the-loop" in the distribution of crypto key materials.

This project is in Budget Activity 7, Operational System Development, because it addresses the development and transition of information security, protection, and defensive capabilities and technologies.

NOTE: In parallel, DoD and the Services are developing a new generation of End Crypto Units (ECUs) under the Joint Crypto Modernization Initiative that will be capable of direct interaction with the KMI. (See BPAC 675100, this PE, for the AF CM Program supporting this Initiative). In some cases these new ECUs, although needing to be supported by KMI, will not be KMI network-connected. "Last mile" transport of black (aka benign, or encrypted) keying material from a KMI client to a new generation ECU will need to be handled in the early years by one of two data transfer devices. CPSG and NSA are exploring new key delivery methods for KMI CI-3: "Mobile" COMSEC Accounts that can be wheeled out to platforms and remote ECUs; a new Simple Key Loader (SKL) for Special Operations that carries more

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0303140F Information Systems Security Program</b>	PROJECT NUMBER AND TITLE <b>5231 AF Key Management Infrastructure (AF KMI)</b>
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keys and is smaller and lighter; and a method called "over-the-air-keying (OTAK)" to ultimately replace the data transfer devices.

(U) <b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Continue architectural planning, systems engineering, and studies and analyses for Migration to Key Management Infrastructure (includes acquisition planning, systems integration, Engineering support and SPO support)	1.917	3.592	4.048
(U) Continue next generation Last Mile Systems development & Concept Refinement (F22), and risk mitigation: End user key delivery devices; user node application software; and related computer-based training	2.213	5.010	4.501
(U) Break out next generation fill device development from Last Mile Systems Development	0.000	0.000	2.592
(U) Break out single point keying capability concept (studies, device and software) from Last Mile Systems Development	0.000	0.000	1.625
(U) Break out web-based key transfer to aircraft from Last Mile Systems development	0.000	0.000	2.300
(U) Design and develop the KOV-21 follow-on engine for the next generation fill device (effort transfers from ISSP BPAC 675100)	0.000	0.000	0.501
(U) Total Cost	4.130	8.602	15.567

(U) **C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2008</u> <u>Actual</u>	<u>FY 2009</u> <u>Estimate</u>	<u>FY 2010</u> <u>Estimate</u>	<u>FY 2011</u> <u>Estimate</u>	<u>FY 2012</u> <u>Estimate</u>	<u>FY 2013</u> <u>Estimate</u>	<u>FY 2014</u> <u>Estimate</u>	<u>FY 2015</u> <u>Estimate</u>	<u>Cost to</u> <u>Complete</u>	<u>Total Cost</u>
(U) See AF Other Procurement PE 33140F	9.984	7.021	21.094	16.199	21.613	22.040	22.481	22.930	Continuing	TBD

Note: this line includes both AFEKMS and AF KMI Other Procurement (3080) money.

(U) **D. Acquisition Strategy**

All major contracts within this Project are awarded after full and open competition. Evolutionary Acquisition with Spirals being fielded in Capability Increments.

UNCLASSIFIED

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE  
**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>07 Operational System Development</b>				<b>0303140F Information Systems Security Program</b>					<b>5231 AF Key Management Infrastructure (AF KMI)</b>			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2008 Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date	Cost to Complete	Total Cost	Target Value of Contract
(U) <u>Product Development</u>												
Architectural Planning & Migration (to) the KMI Infrastructure Studies & Analyses & Systems Engineering	CPFF	MITRE, San Antonio, TX	0.630	0.818	Jan-08	0.873	Jan-09	1.090	Jan-10	Continuing	TBD	TBD
Last Mile Concept Development/Refinement	T&M	SAIC, San Diego, CA	0.861	2.208	Jan-08	5.010	Jan-09	4.636	Jan-10	Continuing	TBD	TBD
Next Generation Fill Device	T&M	TBD	0.000	0.000		0.000		2.592	Jan-10	Continuing	TBD	TBD
Single Point Keying Capability Development	TBD	TBD	0.000	0.000		0.000		2.300	Jan-10	Continuing	TBD	TBD
Web-based Key Transfer to Aircraft	TBD	TBD	0.000	0.000		0.000		1.625	Apr-10	Continuing	TBD	TBD
KOV-21 Follow-on Engine Development	TBD	TBD	0.000			0.000		0.501	Jan-10	Continuing	TBD	TBD
Subtotal Product Development			1.491	3.691		6.597		13.562		Continuing	TBD	TBD
Remarks:	Product development for "Last Mile" under the KMI BPAC 675231 is expanded to include web-based keying for wide aircraft as a result of the F-22 concept development/refinement and the follow-on crypto engine for the next generation fill device(s). Zero-based transfer of \$50.3M from the Cryptographic Modernization BPAC 675100 to the KMI BPAC 675231. Approved during FY10 POM (CCN 10R2C001AN).											
(U) <u>Support</u>												
System Administrator	T&M	General Dynamics, San Antonio, TX	0.000	0.120	Jul-08	0.120	Jul-09	0.124	Jul-10	Continuing	TBD	TBD
Professional Acquisition Support Services	T&M	P. E. Systems, San Antonio, TX	0.000	0.126	Feb-08	1.573	Feb-09	1.548	Feb-10	Continuing	TBD	TBD
Engineering Technology Acquisition Support services (ETASS)	T&M	Jacobs Engineering, San Antonio, TX	0.000	0.193	Jan-08	0.312	Jan-09	0.333	Jan-10	Continuing	TBD	TBD
Subtotal Support			0.000	0.439		2.005		2.005		Continuing	TBD	TBD
Remarks:	Prior year acquisition support was provided on the ITSP II contract by Booz, Allen, Hamilton, San Antonio, Tx.											
(U) <u>Test &amp; Evaluation</u>												
N/A											0.000	0.000
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Management</u>												
N/A											0.000	0.000
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			1.491	4.130		8.602		15.567		Continuing	TBD	TBD

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Project 5231

Exhibit R-3 (PE 0303140F)



Exhibit R-4, RDT&E Schedule Profile

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May 2009

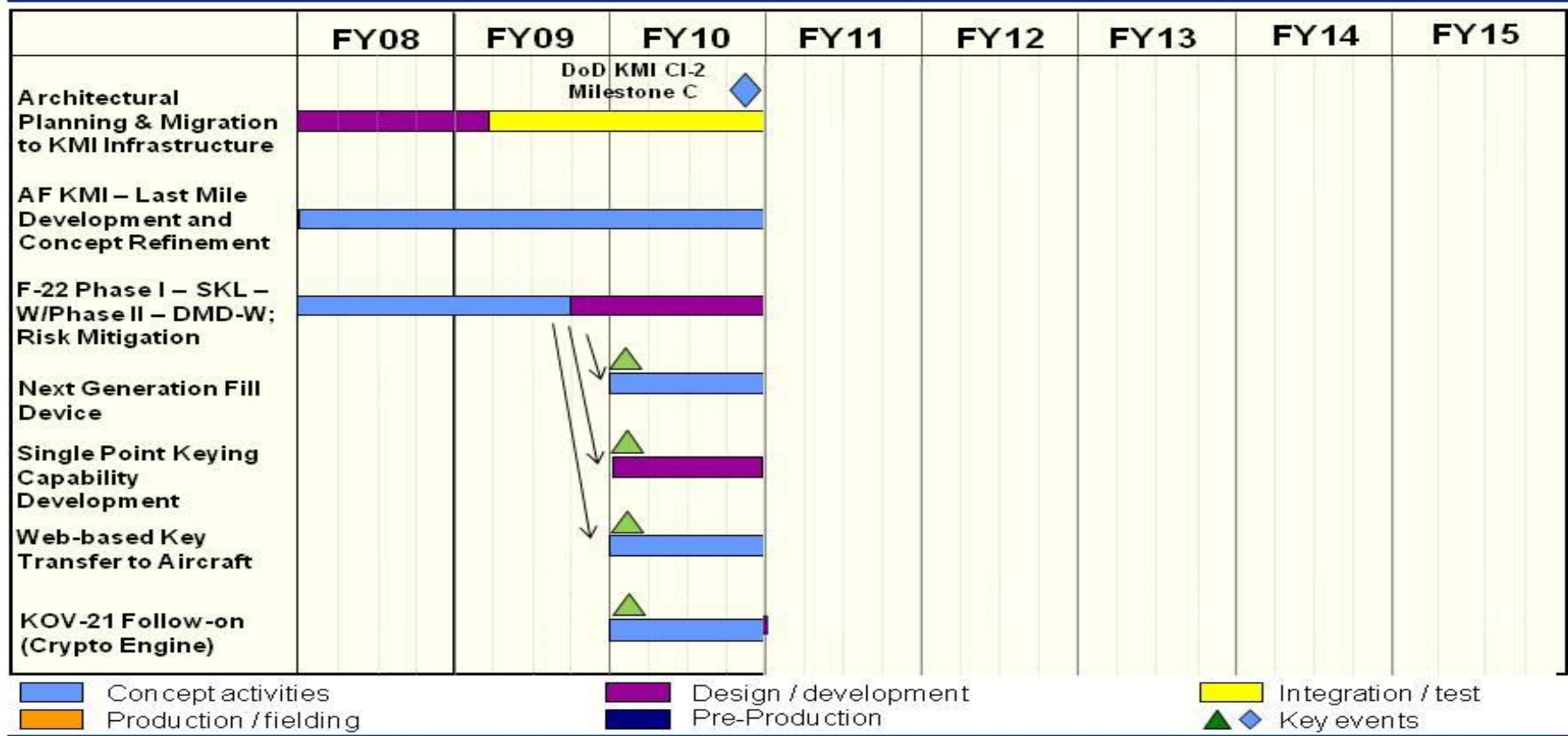
BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0303140F Information Systems Security Program

PROJECT NUMBER AND TITLE  
5231 AF Key Management Infrastructure (AF KMI)



# ISSP BPAC 675231: KMI Program Schedule



PB10 R-Docs

Depicted by installation/production flow

1

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Project 5231

Exhibit R-4 (PE 0303140F)

Exhibit R-4a, RDT&E Schedule Detail

DATE

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BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0303140F Information Systems Security Program</b>	PROJECT NUMBER AND TITLE <b>5231 AF Key Management Infrastructure (AF KMI)</b>
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(U) <b>Schedule Profile</b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Architectural Planning & Migration (to) the KMI Infrastructure	1-4Q	1-4Q	1-4Q
(U) Develop next generation Last Mile Systems & Concept Refinement (F-22)	1-4Q	1-4Q	1-4Q
(U) Next Generation Fill Device			1-4Q
(U) Single Point Keying Study and Capability			1-4Q
(U) Web-based Key Transfer to Aircraft			1-4Q
(U) KOV-21 Follow-on Engine			2-4Q

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>				PE NUMBER AND TITLE <b>0303140F Information Systems Security Program</b>				PROJECT NUMBER AND TITLE <b>7820 Computer Security RDT&amp;E: Firestarter</b>		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
7820 Computer Security RDT&E: Firestarter	23.643	20.395	7.466	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

The Firestarter program provides technical transition opportunities for research in the area of Information Assurance (IA) technologies and tools needed to defend Air Force Command, Control, Communications, Computer, and Intelligence (C4I) systems from computer network attacks, and ensure recovery in the event of an attack. As one of the Air Force managers for IA R&D, the PMO ensures that the emphasis of the program is directed toward computer and network systems security; damage assessment and recovery; cyber threat recognition, attribution, and mitigation; and active response methodologies. These areas of emphasis are realized through research and development in the areas of: cyberspace surveillance; cyber indications and warning (CI&W); high-speed and host-based intrusion detection; fusion and correlation of cyber intelligence; decision support; recovery; digital forensics; active response, etc. Current Air Force systems, such as the Combat Information Transport System/Base Information Protection (CITS/BIP) leverage this technology to meet their information assurance needs/requirements. Additionally, this program utilizes IA and cyber technology investments by the Defense Advanced Research Projects Agency (DARPA), the National Security Agency (NSA), Department of National Intelligence (DNI), Intelligence Advanced Research Projects Activity (IARPA), and the Department of Homeland Security (DHS) to jump-start its development of solutions to existing Air Force IA and cyber requirements. This program coordinates and cooperates with the JTF-GNO, STRATCOM, DISA, NSA and other services to ensure Global Information Grid (GIG) IA requirements are being met. Activities performed include those designed to identify, analyze, test, acquire, and integrate emerging IA technology into all regions of the GIG - terrestrial, airborne, and space systems. Activities also include studies and analysis to support both current program planning and execution and future program planning.

This program is in Budget Activity 7, Operational System Development, because it addresses the development and transition of information security, protection, and defensive capabilities and technologies.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Continue development of cyber forensic tools and methodologies (FY09 \$3.2M Cong. Add)	0.786	4.095	0.980
(U) Break out efforts for Cyber Threat Recognition (from cyber forensic tools & methodologies)			0.846
(U) Break out efforts for Cyber Threat Attribution and Mitigation (from cyber forensic tools & methodologies)			0.972
(U) Completed development of technology for self-healing, self-regenerative systems (to include automated system recovery)	1.383	0.000	0.000
(U) Continue development of information attack correlation methodologies	1.231	0.880	0.492
(U) Completed development of methodologies for Steganography Detection and Dynamic Quarantine of Worms	0.871	0.000	0.000
(U) Continue effort to develop metrics for reliable information assurance (IA) measurement and testing	0.739	0.652	0.230
(U) Continue development of secure interoperable distributed agent computing	0.939	0.825	0.385
(U) Continue effort to provide active response, dynamic policy Enforcement and computer/network attack attribution	1.679	1.595	0.873

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Project 7820

Exhibit R-2a (PE 0303140F)

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0303140F Information Systems Security Program</b>	<b>PROJECT NUMBER AND TITLE</b> <b>7820 Computer Security RDT&amp;E: Firestarter</b>
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<b>(U) B. Accomplishments/Planned Program (\$ in Millions)</b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Continue effort to provide dynamic, cost effective, risk mitigation information assurance techniques for wireless networks and systems	0.793	0.557	0.530
(U) Continue effort to provide IA/Cyber modeling and simulation for mission impact assessment and dynamic network security planning	0.723	0.520	0.203
(U) Continue effort to provide secure coalition IA data management, collaboration, and visualization	0.914	0.602	0.302
(U) Continue Cyber Security Bots	1.879	1.376	0.360
(U) Continue Integrated Airborne Network Security IO Platform	1.031	0.982	0.100
(U) Continue effort to transition DARPA/DTO/IARPA/DHS information assurance (IA) technology into AF Information Protection, Detection, & Response architecture (includes: support for terrestrial network defense overarching strategy; development of technology demonstrations and prototypes for IA of airborne IP networking; and identify and develop solutions for IA in space systems)	10.675	5.209	0.900
(U) Break out support for terrestrial network defense overarching strategy (from DARPA/etc. IA technology transition effort)			0.095
(U) Break out development of technology demonstrations and prototypes for information assurance of airborne IP networking (from DARPA/etc. IA technology transition effort)			0.098
(U) Break out efforts to identify and develop solutions for information assurance in space systems (from DARPA/etc. IA technology transition effort)			0.100
(U) Initiate Remote Suspect Identification (FY09 Congressional Add)		3.102	
(U) Total Cost	23.643	20.395	7.466

<b>(U) C. Other Program Funding Summary (\$ in Millions)</b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to Complete</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>		
(U) N/A										
(U) N/A										

**(U) D. Acquisition Strategy**  
All major contracts within this project are awarded after full and open competition utilizing evolutionary capability and incremental development.

UNCLASSIFIED

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>07 Operational System Development</b>				<b>0303140F Information Systems Security Program</b>					<b>7820 Computer Security RDT&amp;E: Firestarter</b>			
<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
<u>(U) Product Development</u>												
FFRDC (MITRE)	CPFF	Multiple Locations	6.862	17.222	Jan-08	0.300	Jan-09	0.250	Jan-10	Continuing	TBD	TBD
Multiple Contractors	CPFF	Multiple Locations	105.668	6.056	Jan-08	19.250	Jan-09	5.244	Jan-10	Continuing	TBD	TBD
Multiple Universities	CPFF	Multiple Locations	16.116	0.365	Jan-08	0.845	Jan-09	1.972	Jan-10	Continuing	TBD	TBD
Subtotal Product Development			128.646	23.643		20.395		7.466		Continuing	TBD	TBD
Remarks:	Multiple contractors & multiple universities reflect on-going efforts with over a dozen contractors & universities. Each has a different contract date depending on when that particular contract was awarded.											
<u>(U) Total Cost</u>			128.646	23.643		20.395		7.466		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

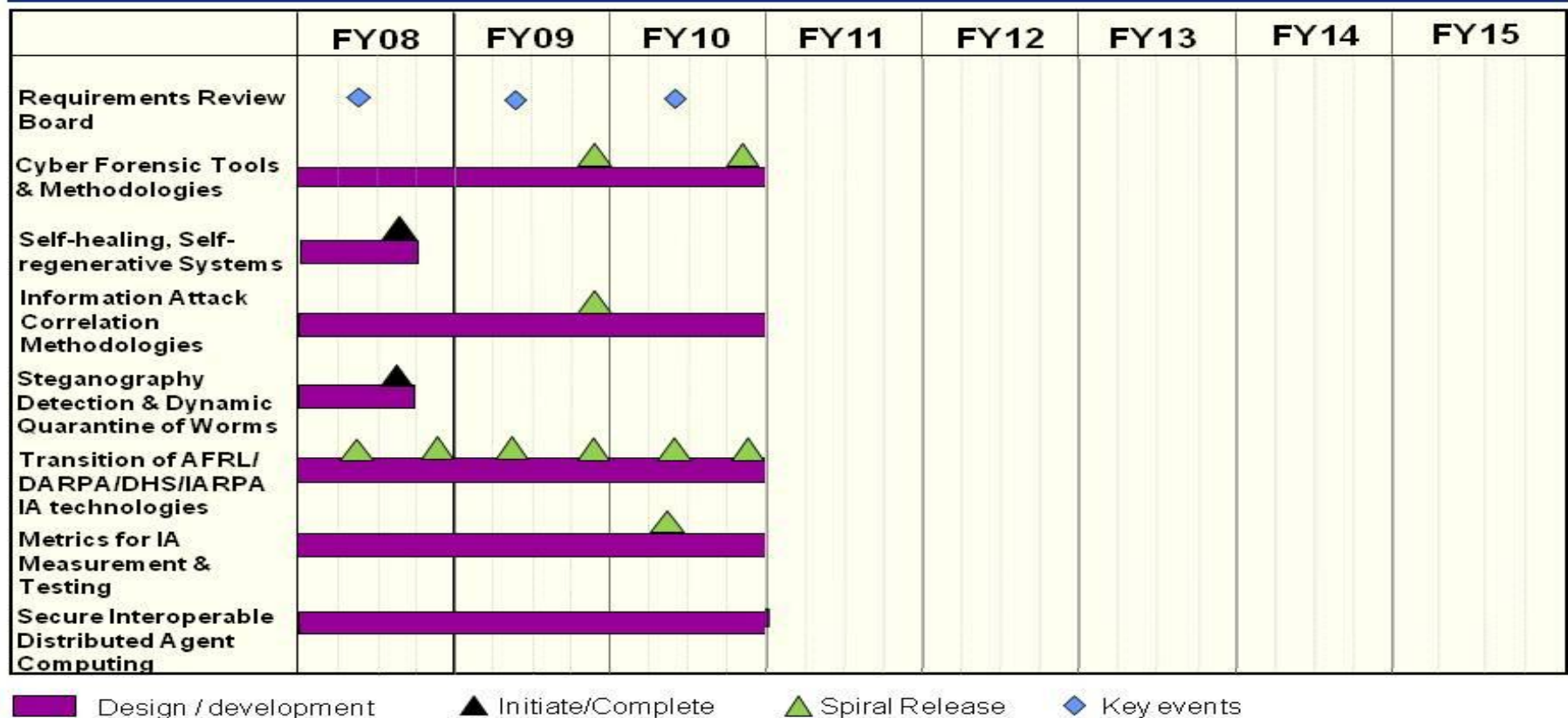
BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0303140F Information Systems  
Security Program

PROJECT NUMBER AND TITLE  
7820 Computer Security RDT&E:  
Firestarter



## ISSP BPAC 677820: Firestarter Program Schedule (p1 of 3)



PB10 R-Docs

Depicted by installation/production flow

1

Exhibit R-4, RDT&E Schedule Profile

DATE  
May 2009

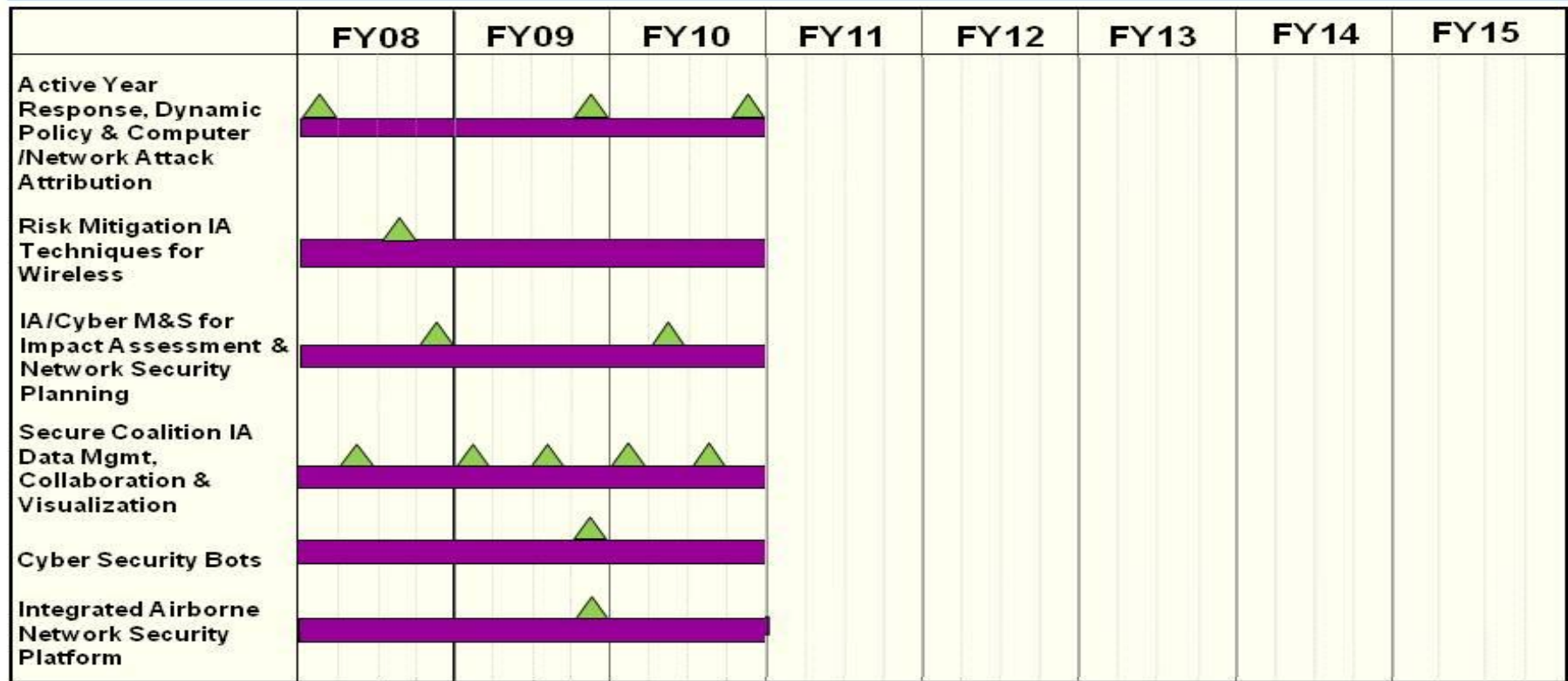
BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0303140F Information Systems Security Program

PROJECT NUMBER AND TITLE  
7820 Computer Security RDT&E: Firestarter



## ISSP BPAC 677820: Firestarter Program Schedule (p2 of 3)



Design / development    
  Initiate/Complete    
  Spiral Release    
  Key events

PB10 R-Docs

Depicted by installation/production flow



Exhibit R-4, RDT&E Schedule Profile

DATE  
May 2009

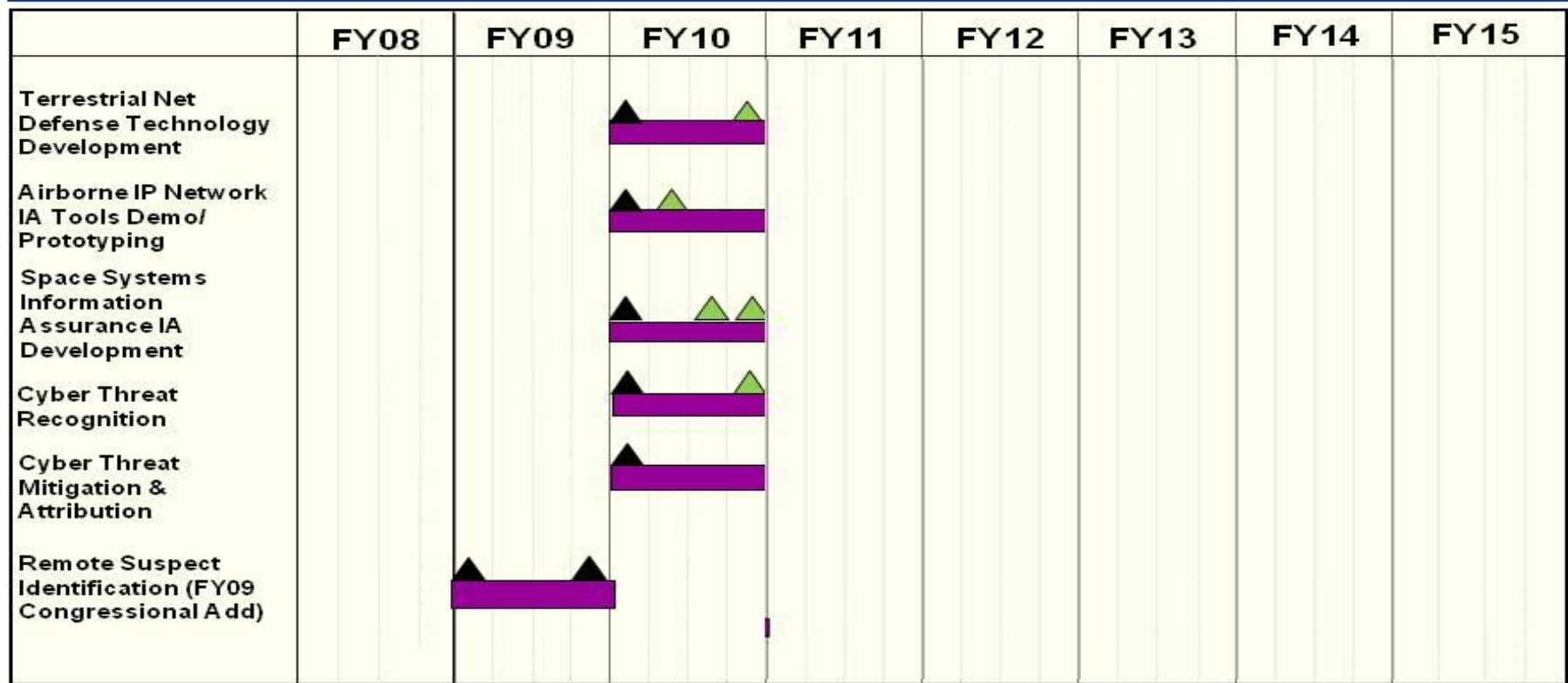
BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0303140F Information Systems Security Program

PROJECT NUMBER AND TITLE  
7820 Computer Security RDT&E: Firestarter



## ISSP BPAC 677820: Firestarter Program Schedule (p3 of 3)



Design / development    
  Initiate/Complete    
  Spiral Release    
  Key events

**PB10 R-Docs**

Depicted by installation/production flow



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Exhibit R-4a, RDT&E Schedule Detail		DATE May 2009		
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT NUMBER AND TITLE		
<b>07 Operational System Development</b>	<b>0303140F Information Systems Security Program</b>	<b>7820 Computer Security RDT&amp;E: Firestarter</b>		
		<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) <b>Schedule Profile</b>				
(U) Requirements Review Boards		2Q	2Q	2Q
(U) Continue development of cyber forensic tools and methodologies (includes cyber threat recognition, mitigation and attribution) (FY09 \$3.2M Cong. Add)		1-4Q	1-4Q	1-4Q
(U) Break out efforts for Cyber Threat Recognition (from cyber forensic tools & methodologies)				1-4Q
(U) Break out efforts for Cyber Threat Attribution and Mitigation (from cyber forensic tools & methodologies)				1-4Q
(U) Completed development of technology for self-healing, self-regenerative systems		1-3Q		
(U) Continue information attack correlation methodologies		1-4Q	1-4Q	1-4Q
(U) Completed development of methodologies for Steganography Detection and Dynamic Quarantine of Worms		1-3Q		
(U) Continue effort to develop metrics for reliable information assurance (IA) measurement and testing		1-4Q	1-4Q	1-4Q
(U) Continue secure interoperable distributed agent computing		1-4Q	1-4Q	1-4Q
(U) Continue to develop active response, dynamic policy enforcement, and computer/network attack attribution		1-4Q	1-4Q	1-4Q
(U) Continue risk mitigation IA techniques for wireless networks and systems		1-4Q	1-4Q	1-4Q
(U) Continue IA/Cyber modeling and simulation for mission impact assessment and dynamic network security planning		1-4Q	1-4Q	1-4Q
(U) Continue secure coalition IA data management collaboration and visualization		1-4Q	1-4Q	1-4Q
(U) Continue Cyber Security Bots (Cybercraft)		1-4Q	1-4Q	1-4Q
(U) Continue Integrated Airborne Network Security IO platform		1-4Q	1-4Q	1-4Q
(U) Continue effort to transition DARPA/DTO/IARPA/DHS information assurance (IA) technology into AF Information Protection, Detection, & Response architecture (includes: support for terrestrial network defense overarching strategy; development of technology demonstrations and prototypes for IA of airborne IP networking; and identify and develop solutions for IA in space systems)		1-4Q	1-4Q	1-4Q
(U) Break out support for terrestrial network defense overarching strategy for tools, architecture, protocols, and technologies (from DARPA/etc. IA technology transition effort)				1-4Q
(U) Break out development of technology demonstrations and prototypes for information assurance of airborne IP networking (from DARPA/etc. IA technology transition effort)				1-4Q
(U) Break out efforts to identify and develop solutions for information assurance in space systems				1-4Q

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Project 7820

Exhibit R-4a (PE 0303140F)

**Exhibit R-4a, RDT&E Schedule Detail**

DATE

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BUDGET ACTIVITY

**07 Operational System Development**

PE NUMBER AND TITLE

**0303140F Information Systems  
Security Program**

PROJECT NUMBER AND TITLE

**7820 Computer Security RDT&E:  
Firestarter**

(from DARPA/etc. IA technology transition effort)

(U) Complete Remote Suspect Identification (FY09 Congressional Add)

1-4Q

**UNCLASSIFIED**

PE NUMBER: 0303141F  
 PE TITLE: Global Combat Support System (GCSS)

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	<b>DATE</b> <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0303141F Global Combat Support System (GCSS)</b>
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	14.665	5.744	3.375	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5046 Systems Engineering & Integration	14.665	5.744	3.375	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

**(U) A. Mission Description and Budget Item Justification**

Global Combat Support System-Air Force (GCSS-AF) will provide the warfighter and supporting elements with timely, accurate, and trusted Agile Combat Support (ACS) information. This information will have the appropriate level of security needed for the Air Expeditionary Forces (AEF) to execute the Air Force mission throughout the full spectrum of military operations.

The GCSS-AF program modernizes, consolidates, develops, and integrates Air Force and Department of Defense combat support information systems. The modernized systems are being developed in compliance with and hosted on the Network Centric Enterprise Systems, replacing the Defense Information Infrastructure (DII) Common Operating Environment (COE). The modernized systems is implemented and sustained worldwide and supports both wartime and peacetime requirements using hardware, software, and communications capabilities available from standard open systems government contracts and communications infrastructure programs. In this manner, GCSS-AF avoids added costs, removes business processing inefficiencies, reduces deployment footprint, and improves the speed with which information flows. Continued test and evaluation is critical to avoid technical obsolescence of this critical infrastructure and includes studies and analysis to support both current program planning and execution and future program planning.

This program is in Budget Activity 7, Operational System Development, because the program modernizes Automated Information Systems (AIS).

**(U) B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	11.756	4.320	3.727
(U) Current PBR/President's Budget	14.665	5.744	3.375
(U) Total Adjustments	2.909	1.424	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.016	
Congressional Increases		1.440	
Reprogrammings	3.200		
SBIR/STTR Transfer	-0.291		

**(U) Significant Program Changes:**

As the initial increment of GCSS-AF enters sustainment, we reduced the need for RDT&E funding, ramping it down from ~\$22M in FY07, to ~\$12M FY08, and ~\$4M per year for FY09 and FY10 while we continue test and evaluation efforts. In FY09, Congress added \$1.44M for Technical Order Optimization (similar to an FY08 addition). GCSS-AF also recieved ~\$12.5M additional FY08 O&M resources to sustain the deployed capabilities.

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>						<b>PE NUMBER AND TITLE</b> <b>0303141F Global Combat Support System (GCSS)</b>		<b>PROJECT NUMBER AND TITLE</b> <b>5046 Systems Engineering &amp; Integration</b>			
Cost (\$ in Millions)		FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5046	Systems Engineering & Integration	14.665	5.744	3.375	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

Global Combat Support System-Air Force (GCSS-AF) will provide the warfighter and supporting elements with timely, accurate, and trusted Agile Combat Support (ACS) information. This information will have the appropriate level of security needed for the Air Expeditionary Forces (AEF) to execute the Air Force mission throughout the full spectrum of military operations.

The GCSS-AF program modernizes, consolidates, develops, and integrates Air Force and Department of Defense combat support information systems. The modernized systems are being developed in compliance with and hosted on the Network Centric Enterprise Systems, replacing the Defense Information Infrastructure (DII) Common Operating Environment (COE). The modernized systems is implemented and sustained worldwide and supports both wartime and peacetime requirements using hardware, software, and communications capabilities available from standard open systems government contracts and communications infrastructure programs. In this manner, GCSS-AF avoids added costs, removes business processing inefficiencies, reduces deployment footprint, and improves the speed with which information flows. Continued test and evaluation is critical to avoid technical obsolescence of this critical infrastructure and includes studies and analysis to support both current program planning and execution and future program planning.

This program is in Budget Activity 7, Operational System Development, because the program modernizes Automated Information Systems (AIS).

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Prime Contractor (Integration Framework (IF) Development)	9.231	0.372	2.241
(U) Engineering Support (MITRE)	1.435	1.022	0.713
(U) Tech Order Optimization (FY08 and FY09 Congressional add)	1.162	1.403	0.000
(U) Test and Evaluation	0.862	1.157	0.000
(U) Program Management & Operations	1.490	1.305	0.421
(U) Integrated Requirements Support System (IRSS) Integration	0.485	0.485	0.000
(U) Total Cost	14.665	5.744	3.375

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Integrated Framework										
Operation & Maintenance, AF; PE 0303141F	42.531	29.989	29.744						Continuing	TBD

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0303141F Global Combat Support System (GCSS)</b>	<b>PROJECT NUMBER AND TITLE</b> <b>5046 Systems Engineering &amp; Integration</b>
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**(U) C. Other Program Funding Summary (\$ in Millions)**

(U) DISA Operation & Maintenance, AF; PE 0303141F	31.672	46.344	43.523		Continuing	TBD
(U) Other Procurement, AF; PE 0303141F	19.145	10.431	17.011		Continuing	TBD

**(U) D. Acquisition Strategy**

On 30 October 2007, the Assistant Secretary of the Air Force (Acquisition) chaired the Air Force Review Board for the GCSS-AF's Transition to Sustainment Strategy. Mrs. Payton signed a Senior Acquisition Executive Decision Memorandum documenting GCSS-AF as a Post-Milestone C Program with its initial increment to go to sustainment. In December 07, OSD/NII removed GCSS-AF from the list of Major Automated Information Systems (MAIS). In July, Mrs. Payton designated GCSS-AF as an ACAT III program and delegated it to the Program Executive Office (PEO) for Command and control and Combat Support (PEO C2&CS) for acquisition oversight. The Exhibit R-4 Schedule reflects this latest guidance. Thus, the preponderance of GCSS-AF development, that is system engineering, design, and installation, was provided for in the Indefinite Delivery/Indefinite Quantity (ID/IQ) contract with Firm-Fixed-Price (FFP), Cost Reimbursable (CR), Cost-Plus-Fixed-Fee (CPFF), Cost-Plus-Award-Fee (CPAF), and Labor-Hour (LH) Contract Line Item Numbers (CLINs), awarded after full and open competition in 1996. The Air Force extended the original contract two years. During this extension, the Air Force is competing a new operations and maintenance contract to support the fielded capability and continue required test and evaluation efforts.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>07 Operational System Development</b>				<b>0303141F Global Combat Support System (GCSS)</b>					<b>5046 Systems Engineering &amp; Integration</b>			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2008 Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date	Cost to Complete	Total Cost	Target Value of Contract
(U) <u>Product Development</u>												
Integrated Framework Development (Prime Contractor)	Level of Effort	Lockheed Martin IT, Owego, NY	48.141	9.231	Sep-07	0.372		1.794	Sep-09	Continuing	TBD	TBD
Engineering Support	Level of Effort	Mitre Corporation, Boston, MA	2.502	1.435	Sep-07	1.022	Sep-08	1.331	Sep-09	Continuing	TBD	TBD
IRSS Integration	C/T&M	DFSG/SS, Wright Patterson AFB, OH	3.996	0.485	Sep-07	0.485	Oct-08				4.966	4.966
Tech Order Optimization	Level of Effort	Lockheed Martin IT, Owego, NY		1.162	Sep-08	1.403	Jan-09				2.565	2.565
Subtotal Product Development			54.639	12.313		3.282		3.125		Continuing	TBD	TBD
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
Test and Evaluation	Statement of Commitment	46th CTF, WP AFB, OH; and JITC, Fort Huachuca, AZ	3.178	0.862	Sep-07	1.157	Oct-08			Continuing	TBD	TBD
Subtotal Test & Evaluation			3.178	0.862		1.157		0.000		Continuing	TBD	TBD
Remarks:												
(U) <u>Management</u>												
Program Management and Operations	Various Contracts	Hanscom AFB, MA	2.332	1.490	Sep-07	1.305	Oct-08	0.250	Sep-09	Continuing	TBD	TBD
Subtotal Management			2.332	1.490		1.305		0.250		Continuing	TBD	TBD
Remarks:												
(U) Total Cost			60.149	14.665		5.744		3.375		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

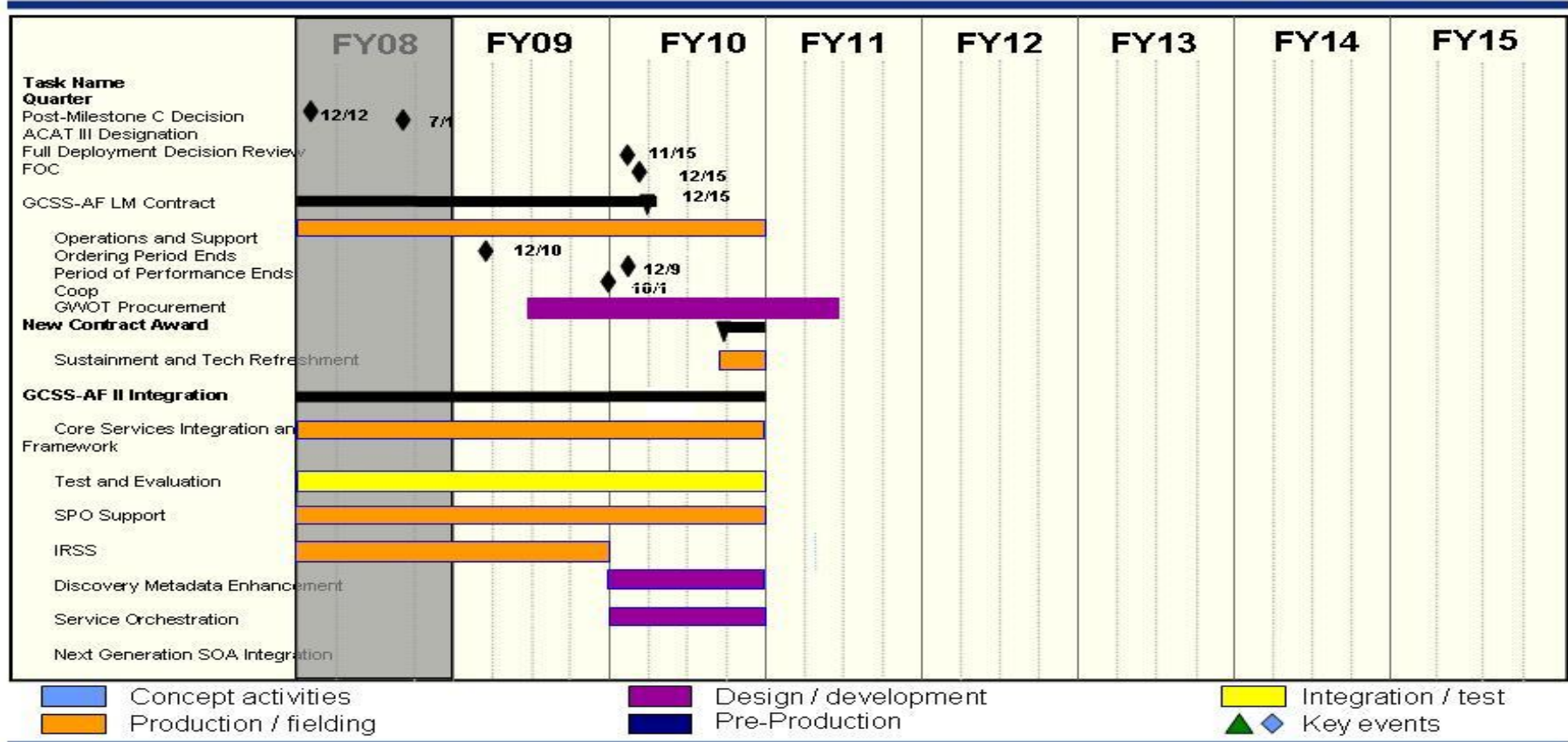
BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0303141F Global Combat Support System (GCSS)

PROJECT NUMBER AND TITLE  
5046 Systems Engineering & Integration



# Global Combat Support System – Air Force



PB10 R-Docs

Depicted by installation/production flow

R-1 Line Item No. 174

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Exhibit R-4 (PE 0303141F)

Project 5046

UNCLASSIFIED

<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0303141F Global Combat Support System (GCSS)</b>	<b>PROJECT NUMBER AND TITLE</b> <b>5046 Systems Engineering &amp; Integration</b>
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<b>(U) <u>Schedule Profile</u></b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Major Milestones			
(U) ___ Post-milestone C Decision	1Q		
(U) ___ Acquisition Category III Designation	3Q		
(U) ___ Full Deployment Decision Review (FDDR)			1Q
(U) ___ Full Operational Capability (FOC)			1Q
(U) Original GCSS-AF/Lockheed Martin Contract			
(U) ___ Operations and Support	4Q	1-4Q	1-4Q
(U) ___ Ordering Period Ends		1Q	
(U) ___ Period of Performance Ends			1Q
(U) ___ Continuity of Operations (COOP) Capability			1Q
(U) ___ GWOT Procurement		1-4Q	1-4Q
(U) New Contract Award			
(U) ___ Sustainment and Technical Refreshment			3-4Q
(U) GCSS-AF II Integration			
(U) ___ Core Services Integration and Framework	4Q	1-4Q	1-4Q
(U) ___ Test and Evaluation	4Q	1-4Q	1-4Q
(U) ___ SPO Support	4Q	1-4Q	1-4Q
(U) ___ IRSS	4Q	1-4Q	
(U) ___ Discovery and Metadata Enhancement			1-4Q
(U) ___ Service Orchestration			1-4Q
(U) ___ Next Generation SOA Integration (TBD)			1-4Q



**UNCLASSIFIED**

PE NUMBER: 0303150F

PE TITLE: WWMCCS/GLOBAL COMMAND & CONTROL SYSTEM

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0303150F WWMCCS/GLOBAL COMMAND &amp; CONTROL SYSTEM</b>
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	3.174	3.209	3.149	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
4667 Global Command and Control System - AF	3.174	3.209	3.149	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

**(U) A. Mission Description and Budget Item Justification**

The Global Command and Control System (GCCS) is the Joint Command and Control (C2) System of Record and the designated C2 migration system for the DOD. It is an integrated Command, Control, Communications, Computer, and Intelligence (C4I) system capable of supporting all echelons of the US military command structure. GCCS solves C4I interoperability problems between Service components by establishing a Common Core Operating Environment supporting net-centric objectives. The GCCS-Air Force program provides C2, intelligence, surveillance, reconnaissance (ISR) and operational information for the Joint Force Air Component Commander (JFACC) and the Air and Space Operations Center-Weapon System (AOC-WS) for planning and execution, air space deconfliction, targeting, weaponeering and many other applications supporting air operational command and control, and fully supports the Aerospace Expeditionary Force (AEF) concept. The Air Force is responsible for developing four of the modules that make up the COE, and integration of Air Force unique applications with the COE. Integration efforts are directed towards future aerospace C2 concepts supporting requirements for the AOC, including ISR, and intended to automate operational systems with an objective of providing the right people with the right information at the right time while reducing the overall foot print of the system. As they become available, GCCS-AF will integrate applications into the WINx environment satisfying warfighter requirements for the Common Operational Picture (COP), Joint Warning and Reporting Network (JWARN), Joint Targeting Toolbox (JTT), Logistics Feasibility Analysis Capability (LOGFAC), Deliberate Crisis Action Planning and Execution Segment (DCAPES) capabilities and other information assurance mechanisms. Activities also include studies and analysis to support both current program planning and execution and future program planning.

The GCCS-AF program is actively supporting planning for transition of functionality to DOD's next generation Joint C2 enabler, the Net Enabled Command Capability (NECC) program. The GCCS-AF funding will be used to implement evolving Joint and Air Force GCCS functional capability as well as facilitate transition, development and delivery of functionality to the NECC system.

This effort is Budget Activity 7, Operational System Development, because the program develops and implements software upgrades for integrating existing operational systems and computer networks that will eventually evolve to the NECC system riding on the Global Information Grid.

Exhibit R-2, RDT&E Budget Item Justification

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0303150F WWMCCS/GLOBAL COMMAND & CONTROL SYSTEM

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	4.471	3.218	3.203
(U) Current PBR/President's Budget	3.174	3.209	3.149
(U) Total Adjustments	-1.297	-0.009	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.009	
Congressional Increases			
Reprogrammings	-1.180		
SBIR/STTR Transfer	-0.117		

(U) **Significant Program Changes:**

The FY09 \$4M Congressional Add was reprogrammed to the Integrated Command and Control Applications (IC2A) program (PE 64740F). This reprogramming action enables execution in accordance with Congressional intent.

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>					PE NUMBER AND TITLE <b>0303150F WWMCCS/GLOBAL COMMAND &amp; CONTROL SYSTEM</b>			PROJECT NUMBER AND TITLE <b>4667 Global Command and Control System - AF</b>		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
4667 Global Command and Control System - AF	3.174	3.209	3.149	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

The Global Command and Control System (GCCCS) is the Joint Command and Control (C2) System of Record and the designated C2 migration system for the DOD. It is an integrated Command, Control, Communications, Computer, and Intelligence (C4I) system capable of supporting all echelons of the US military command structure. GCCCS solves C4I interoperability problems between Service components by establishing a Common Core Operating Environment supporting net-centric objectives. The GCCCS-Air Force program provides C2, intelligence, surveillance, reconnaissance (ISR) and operational information for the Joint Force Air Component Commander (JFACC) and the Air and Space Operations Center-Weapon System (AOC-WS) for planning and execution, air space deconfliction, targeting, weaponeering and many other applications supporting air operational command and control, and fully supports the Aerospace Expeditionary Force (AEF) concept. The Air Force is responsible for developing four of the modules that make up the COE, and integration of Air Force unique applications with the COE. Integration efforts are directed towards future aerospace C2 concepts supporting requirements for the AOC, including ISR, and intended to automate operational systems with an objective of providing the right people with the right information at the right time while reducing the overall foot print of the system. As they become available, GCCCS-AF will integrate applications into the WINx environment satisfying warfighter requirements for the Common Operational Picture (COP), Joint Warning and Reporting Network (JWARN), Joint Targeting Toolbox (JTT), Logistics Feasibility Analysis Capability (LOGFAC), Deliberate Crisis Action Planning and Execution Segment (DCAPES) capabilities and other information assurance mechanisms. Activities also include studies and analysis to support both current program planning and execution and future program planning.

The GCCCS-AF program is actively supporting planning for transition of functionality to DOD's next generation Joint C2 enabler, the Net Enabled Command Capability (NECC) program. The GCCCS-AF funding will be used to implement evolving Joint and Air Force GCCCS functional capability as well as facilitate transition, development and delivery of functionality to the NECC system.

This effort is Budget Activity 7, Operational System Development, because the program develops and implements software upgrades for integrating existing operational systems and computer networks that will eventually evolve to the NECC system riding on the Global Information Grid.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Continue Integration of Air Force Capabilities into GCCCS (COP, DCAPES, ATO Reader, Joint Defensive Planner (JDP), Joint Targeting Toolbox (JTT)), Prototype Software Development, GCCCS Migration Support	1.497	2.308	2.248
(U) GCCCS-AF(I) Systems Engineering	1.677	0.901	0.901
(U) Total Cost	3.174	3.209	3.149

Exhibit R-2a, RDT&E Project Justification

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0303150F WWMCCS/GLOBAL  
COMMAND & CONTROL SYSTEM

PROJECT NUMBER AND TITLE

4667 Global Command and Control  
System - AF

(U) **C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Other Procurement, AF	14.222	10.767	10.055						Continuing	TBD
(U) Operations & Maintenance	38.844	48.976	44.460						Continuing	TBD

(U) **D. Acquisition Strategy**

GCCS-AF is developed and fielded using a spiral acquisition approach, synchronized with Common Operating Environment (COE) and compliant with the GCCS-Joint baseline. All deployment of GCCS-AF capabilities are synchronized with the GCCS-Joint Program fielding schedule, which is led by DISA. The GCCS-AF program is actively supporting DOD planning for transition of functionality to the NECC Program.

UNCLASSIFIED

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>07 Operational System Development</b>				<b>0303150F WWMCCS/GLOBAL COMMAND &amp; CONTROL SYSTEM</b>					<b>4667 Global Command and Control System - AF</b>			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> WINxB	SS/FFP	Northrop Gruman ITS, Herndon VA		0.900	Oct-07	1.808	Nov-08	1.733	Nov-09	Continuing	TBD	
Subtotal Product Development			0.000	0.900		1.808		1.733		Continuing	TBD	0.000
Remarks:												
(U) <u>Support</u> Information Technology Services Program (ITSP) Systems Engineering Support	SS/FFP FFRDC/SS/ FFP	Various Mitre/ESC		1.677	Oct-07	0.901	Oct-08	0.916	Oct-09	0.000 Continuing	0.000 TBD	
Miscellaneous	SS/BOA	Various		0.297	Oct-07	0.200	Oct-08	0.200	Oct-09	Continuing	TBD	
Subtotal Support			0.000	1.974		1.101		1.116		Continuing	TBD	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u> Test and Accreditation	FCA	Multiple		0.300	Oct-07	0.300	Oct-08	0.300	Oct-09	Continuing	TBD	
Subtotal Test & Evaluation			0.000	0.300		0.300		0.300		Continuing	TBD	0.000
Remarks:												
(U) Total Cost			0.000	3.174		3.209		3.149		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY  
07 Operational System Development

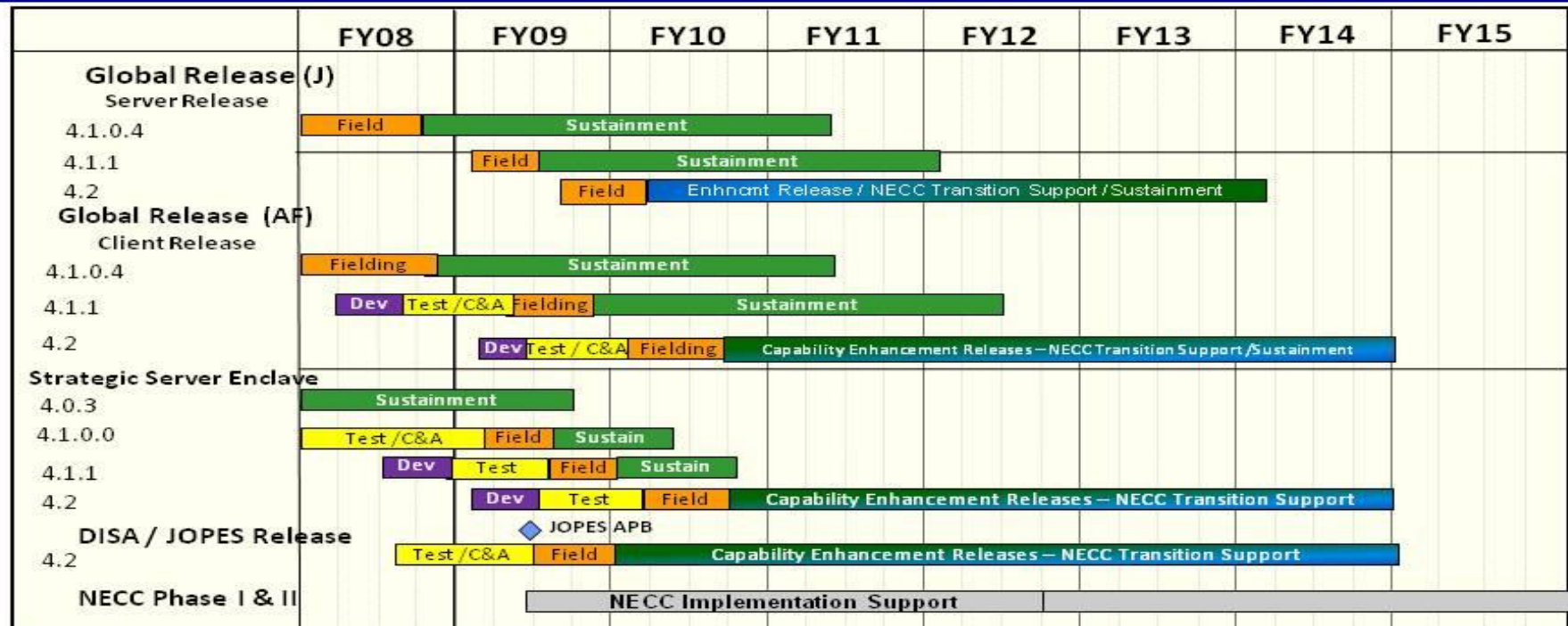
PE NUMBER AND TITLE  
0303150F WWMCCS/GLOBAL  
COMMAND & CONTROL SYSTEM

PROJECT NUMBER AND TITLE  
4667 Global Command and Control  
System - AF

FOR OFFICIAL USE ONLY



# GCCS-AF(I) Integrated Schedule



Design / development    
  Integration / test    
  Capability Development / Enhancement Releases  
 Production / fielding    
  Sustainment    
  Development Efforts    
 ▲ ◆ Key events

*Integrity - Service - Excellence*

**Exhibit R-4a, RDT&E Schedule Detail**

DATE

**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0303150F WWMCCS/GLOBAL COMMAND &amp; CONTROL SYSTEM</b>	PROJECT NUMBER AND TITLE <b>4667 Global Command and Control System - AF</b>
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(U) <u>Schedule Profile</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) GCCS-AF v4.1.0.4: Global Release (GR)/Testing/Fielding	1-3Q		
(U) GCCS-AF v4.1.1: GR/ Development/Integration/Testing/Fielding	1-4Q	1-4Q	
(U) GCCS-AF v4.2: GR/ Development/Integration/Testing/Fielding		1-4Q	1-3Q
(U) GCCS-AF 4.1.0 Strategic Server Enclave (SSE) Integration/Testing/Fielding	1-4Q	1-3Q	
(U) GCCS-AF 4.1.1 SSE Development/Integration/Testing/Fielding	3-4Q	1-4Q	1Q
(U) GCCS-AF 4.2 SSE Development/Integration/Testing/Fielding		1-4Q	1-3Q

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0303158F Joint Command and Control</b>
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	5.585	3.225	3.087	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5216 JC2 Technology and System Development	5.585	3.225	3.087	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

**(U) A. Mission Description and Budget Item Justification**

Net Enabled Command Capability (NECC) is the next generation of joint command and control (C2) capabilities for the Department of Defense. The focus of NECC Increment 1 is transitioning the current Global Command and Control System (GCCS) Family of Systems (FoS) functionality and program enhancements into a single Joint program. The GCCS program includes each of the Component GCCS programs (i.e., GCCS-AF FoS, GCCS-M, GCCS-J and GCCS-A), which are the current programs of record within each component. These GCCS programs will transition into a single NECC development effort.

The Air Force's initial contribution to NECC Increment I will be drawn from elements of the GCCS-Air Force Family of Systems (GCCS-AF FoS). GCCS-AF FoS consists of the following programs (each with their own program elements): TBMCS Force Level (TBMCS-FL), Joint Defensive Planner (JDP) - part of TBMCS-FL baseline program element, Joint Targeting Toolkit (JTT), GCCS-AF Infrastructure (GCCS-AF I), Deliberate Crisis Action Planning and Execution Segment (DCAPES) and the C2 portion of the Joint Environmental Toolkit (JET). Leveraging the capabilities provided by the Net-Centric Enterprise Services (NCES) program, NECC will accelerate the evolution towards a net-centric, web-based, open-system standards approach to providing C2 capabilities and services that will establish NECC as the core of the DoD C2 enterprise architecture.

All of the current GCCS-AF FoS capabilities will transition to NECC by the end of Increment I. NECC will deliver capabilities as stated in the JROC validated NECC Capability Development Document (CDD). NECC enhances the capabilities of the GCCS FoS and includes the migration of capabilities to a more modern, interoperable architecture. The Technology Development Phase underway encompasses risk reduction activities and engineering analyses with selected system and architectural analyses. Activities also include studies and analysis to support both current program planning and execution and future program planning. The requested RDT&E funding is critical to support Air Force net-centric transformation efforts in the areas of strategic and operational command and control.

Funding for FY08 and beyond supports the Air Force contribution to NECC by maintaining the Air Force Component Program Management Office (CPMO) responsible for all AF acquisition activities related to NECC. The AF CPMO will be responsible for development, integration, architecture, system engineering, testing and transition planning, as directed by the DISA PEO for Command and Control Capabilities (PEO-C2C).

This effort is Budget Activity 7 and will perform efforts necessary to evaluate integrated technologies, representative modes or prototype joint C2 capabilities in a high fidelity and realistic operating environment.

Exhibit R-2, RDT&E Budget Item Justification

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0303158F Joint Command and Control

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	5.841	3.234	3.139
(U) Current PBR/President's Budget	5.585	3.225	3.087
(U) Total Adjustments	-0.256	-0.009	
(U) Congressional Program Reductions	-0.059		
Congressional Rescissions	-0.037		
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer	-0.160	-0.009	
(U) <u>Significant Program Changes:</u>			

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

May 2009

BUDGET ACTIVITY		PE NUMBER AND TITLE						PROJECT NUMBER AND TITLE		
07 Operational System Development		0303158F Joint Command and Control						5216 JC2 Technology and System Development		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5216 JC2 Technology and System Development	5.585	3.225	3.087	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) **A. Mission Description and Budget Item Justification**

Net Enabled Command Capability (NECC) is the next generation of joint command and control (C2) capabilities for the Department of Defense. The focus of NECC Increment 1 is transitioning the current Global Command and Control System (GCCS) Family of Systems (FoS) functionality and program enhancements into a single Joint program. The GCCS program includes each of the Component GCCS programs (i.e., GCCS-AF FoS, GCCS-M, GCCS-J and GCCS-A), which are the current programs of record within each component. These GCCS programs will transition into a single NECC development effort.

The Air Force's initial contribution to NECC Increment I will be drawn from elements of the GCCS-Air Force Family of Systems (GCCS-AF FoS). GCCS-AF FoS consists of the following programs (each with their own program elements): TBMCS Force Level (TBMCS-FL), Joint Defensive Planner (JDP) - part of TBMCS-FL baseline program element, Joint Targeting Toolkit (JTT), GCCS-AF Infrastructure (GCCS-AF I), Deliberate Crisis Action Planning and Execution Segment (DCAPES) and the C2 portion of the Joint Environmental Toolkit (JET). Leveraging the capabilities provided by the Net-Centric Enterprise Services (NCES) program, NECC will accelerate the evolution towards a net-centric, web-based, open-system standards approach to providing C2 capabilities and services that will establish NECC as the core of the DoD C2 enterprise architecture.

All of the current GCCS-AF FoS capabilities will transition to NECC by the end of Increment I. NECC will deliver capabilities as stated in the JROC validated NECC Capability Development Document (CDD). NECC enhances the capabilities of the GCCS FoS and includes the migration of capabilities to a more modern, interoperable architecture. The Technology Development Phase underway encompasses risk reduction activities and engineering analyses with selected system and architectural analyses. Activities also include studies and analysis to support both current program planning and execution and future program planning. The requested RDT&E funding is critical to support Air Force net-centric transformation efforts in the areas of strategic and operational command and control.

Funding for FY08 and beyond supports the Air Force contribution to NECC by maintaining the Air Force Component Program Management Office (CPMO) responsible for all AF acquisition activities related to NECC. The AF CPMO will be responsible for development, integration, architecture, system engineering, testing and transition planning, as directed by the DISA PEO for Command and Control Capabilities (PEO-C2C).

This effort is Budget Activity 7 and will perform efforts necessary to evaluate integrated technologies, representative modes or prototype joint C2 capabilities in a high fidelity and realistic operating environment.

Exhibit R-2a, RDT&E Project Justification

DATE

May 2009

BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0303158F Joint Command and Control</b>	PROJECT NUMBER AND TITLE <b>5216 JC2 Technology and System Development</b>
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(U) <b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Technical Engineering Services	2.499	1.791	1.775
(U) Program Management Support Activities	1.685	1.434	1.312
(U) Air Force Support to NECC Development and Piloting	1.401	0.000	0.000
(U) Total Cost	5.585	3.225	3.087

(U) <b><u>C. Other Program Funding Summary (\$ in Millions)</u></b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Other Procurement, AF	0.000	5.333	5.669						Continuing	TBD

(U) **D. Acquisition Strategy**

The NECC acquisition strategy is being jointly developed by the Defense Information Systems Agency (DISA), the Component Program Management Offices (CPMOs), the Assistant Secretary of Defense for Networks and Information Integration (ASD (NII)), Under Secretary of Defense for Acquisition, Technology and Logistics (AT&L), and US Joint Forces Command (USJFCOM). As Lead Component for NECC, DISA has overall responsibility for development and coordination of an acquisition strategy to support Milestone B.

Each service/component will be responsible for awarded contracts or utilizing existing contracts to develop C2 capabilities as described by the DISA NECC JPEO. Funding will also be provided by DISA JPEO.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>07 Operational System Development</b>				<b>0303158F Joint Command and Control</b>					<b>5216 JC2 Technology and System Development</b>			
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
Subtotal Product Development			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Support</u>												
Technical Engineering Services	FP	MITRE, Bedford, MA	4.200	2.499	Nov-07	1.791	Dec-08	1.748	Nov-09	Continuing	TBD	TBD
Subtotal Support			4.200	2.499		1.791		1.748		Continuing	TBD	TBD
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Management</u>												
NECC Capability Module (CM) Piloting	MIPR, CPFF	46 TS Det 1, Eglin AFB 350 ELSG, Hanscom	2.022	1.685	Nov-07	0.000		0.000		Continuing	TBD	TBD
Program Management Support	CPFF	350 ELSG, Hanscom AFB, MA	4.671	1.401	Nov-07	1.434	Nov-08	1.339	Nov-09	Continuing	TBD	TBD
Subtotal Management			6.693	3.086		1.434		1.339		Continuing	TBD	TBD
Remarks:												
(U) Total Cost			10.893	5.585		3.225		3.087		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0303158F Joint Command and Control

PROJECT NUMBER AND TITLE  
5216 JC2 Technology and System Development

FOR OFFICIAL USE ONLY



# NECC Increment 1 Schedule

	FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY15
AF PM Support	[Purple bar spanning FY08 to FY15]							
AF Procurement		[Cyan bar spanning FY09 to FY15]						
DISA Incr. 1 Schedule	[Purple bar: TD Phase]		[Orange bar: System Development & Demo Phase]					
			MS B	MS C				

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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0303158F Joint Command and Control</b>	<b>PROJECT NUMBER AND TITLE</b> <b>5216 JC2 Technology and System Development</b>
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	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) <b><u>Schedule Profile</u></b>			
(U) AF CPMO Support to NECC	1-4Q	1-4Q	1-4Q
(U) Air Force Support for NECC Increment I Tech Demo Phase	1-4Q	1-4Q	1Q
(U) Air Force Support for NECC Increment I System Design and Development (SDD) and Deployment Phases			2-4Q

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**UNCLASSIFIED**

PE NUMBER: 0303601F  
 PE TITLE: MILSATCOM Terminals

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0303601F MILSATCOM Terminals</b>
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	362.676	334.182	257.693	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
2487 MILSATCOM Terminals	362.676	334.182	257.693	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

**(U) A. Mission Description and Budget Item Justification**

The Military Satellite Communications (MILSATCOM) Terminals program develops equipment enabling users to communicate via Milstar, Advanced Extremely High Frequency (AEHF), Ultra High Frequency (UHF) Follow-On (UFO), Wideband Global SATCOM (WGS), Defense Satellite Communication System (DSCS), Enhanced Polar Systems (EPS), and other military and commercial satellites, to support tactical Air and Space Expeditionary Force requirements and maintain essential connectivity for strategic forces. Program RDT&E currently includes the following program operations and support efforts:

- 1) Concept development work to identify commercial/military technology solutions to improve MILSATCOM terminal capabilities for the warfighters. Focus includes, but is not limited to, increasing throughput, facilitating sustainability, reducing footprint on user platform and supporting the network.
- 2) The Family of Advanced Beyond Line-of-Sight Terminals (FAB-T) Increment 1 program will provide Extremely High Frequency (EHF) voice and data MILSATCOM for nuclear and conventional forces as well as airborne and ground command posts with connectivity to Milstar and Advanced EHF satellites. FAB-T Increment 1 terminals will also support the command and control (C2) of Milstar and AEHF satellites. Increment 2 will provide robust secure 2-way Ku/Ka wideband SATCOM capability (274 Megabits per second - Mbps) on Intelligence, Surveillance, and Reconnaissance (ISR) and other aircraft (e.g., the Global Hawk Unmanned Aerial Vehicle). Increment 2 funds in FY10 are for Risk Reduction efforts.
- 3) The High Data Rate - Radio Frequency (HDR-RF) Ground Terminal program will provide the high data rate SATCOM needed to support the Intelligence, Surveillance and Reconnaissance (ISR) community with High Bandwidth High Throughput (HBHT) capability. HDR-RF Ground Terminals will be used for Command & Control, Intelligence, Surveillance and Reconnaissance (C2ISR), and will support the full spectrum of operations from humanitarian support/disaster relief to a major theater war. HDR-RF Ground Terminals will provide up to 274 Mbps capability via Wideband Global SATCOM beginning with flight 4 and will be interoperable with FAB-T Increment 2 Air Intelligence Surveillance Reconnaissance (AISR) platforms. HDR-RF Ground Terminals will include an HBHT Software Communications Architecture (SCA) compliant modem and will provide quad band C-, X-, Ku- and Ka-band SATCOM. HDR-RF Ground Terminals will be interoperable with legacy tactical terminals and operate worldwide with existing military and commercial spacecraft. The user of HDR-RF Ground Terminals is the Global Hawk Ground Mission Control Element (MCE). HDR-RF funds in FY10 are for Risk Reduction efforts.
- 4) Joint Terminal Engineering Office (JTEO) provides tri-service coordination of terminal development, acquisition and fielding activities.
- 5) Global Broadcast Service (GBS) provides for development, systems engineering and integration, test, Transmission Security (TRANSEC) compliance development, and program office support of Receive Suites.

This effort is funded in Budget Activity 7, Operational System Development because some of its programs have completed Milestone C reviews and are in production.

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0303601F MILSATCOM Terminals

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	384.652	337.098	257.831
(U) Current PBR/President's Budget	362.676	334.182	257.693
(U) Total Adjustments	-21.976	-2.916	
(U) Congressional Program Reductions		-2.007	
Congressional Rescissions		-0.909	
Congressional Increases			
Reprogrammings	-10.000		
SBIR/STTR Transfer	-11.976		
(U) <u>Significant Program Changes:</u>			
FY10 adds funding for development of GBS Portable Receive Suites.			

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

May 2009

BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE		
07 Operational System Development				0303601F MILSATCOM Terminals				2487 MILSATCOM Terminals		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
2487 MILSATCOM Terminals	362.676	334.182	257.693	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) **A. Mission Description and Budget Item Justification**

The Military Satellite Communications (MILSATCOM) Terminals program develops equipment enabling users to communicate via Milstar, Advanced Extremely High Frequency (AEHF), Ultra High Frequency (UHF) Follow-On (UFO), Wideband Global SATCOM (WGS), Defense Satellite Communication System (DSCS), Enhanced Polar Systems (EPS), and other military and commercial satellites, to support tactical Air and Space Expeditionary Force requirements and maintain essential connectivity for strategic forces. Program RDT&E currently includes the following program operations and support efforts:

- 1) Concept development work to identify commercial/military technology solutions to improve MILSATCOM terminal capabilities for the warfighters. Focus includes, but is not limited to, increasing throughput, facilitating sustainability, reducing footprint on user platform and supporting the network.
- 2) The Family of Advanced Beyond Line-of-Sight Terminals (FAB-T) Increment 1 program will provide Extremely High Frequency (EHF) voice and data MILSATCOM for nuclear and conventional forces as well as airborne and ground command posts with connectivity to Milstar and Advanced EHF satellites. FAB-T Increment 1 terminals will also support the command and control (C2) of Milstar and AEHF satellites. Increment 2 will provide robust secure 2-way Ku/Ka wideband SATCOM capability (274 Megabits per second - Mbps) on Intelligence, Surveillance, and Reconnaissance (ISR) and other aircraft (e.g., the Global Hawk Unmanned Aerial Vehicle). Increment 2 funds in FY10 are for Risk Reduction efforts.
- 3) The High Data Rate - Radio Frequency (HDR-RF) Ground Terminal program will provide the high data rate SATCOM needed to support the Intelligence, Surveillance and Reconnaissance (ISR) community with High Bandwidth High Throughput (HBHT) capability. HDR-RF Ground Terminals will be used for Command & Control, Intelligence, Surveillance and Reconnaissance (C2ISR), and will support the full spectrum of operations from humanitarian support/disaster relief to a major theater war. HDR-RF Ground Terminals will provide up to 274 Mbps capability via Wideband Global SATCOM beginning with flight 4 and will be interoperable with FAB-T Increment 2 Air Intelligence Surveillance Reconnaissance (AISR) platforms. HDR-RF Ground Terminals will include an HBHT Software Communications Architecture (SCA) compliant modem and will provide quad band C-, X-, Ku- and Ka-band SATCOM. HDR-RF Ground Terminals will be interoperable with legacy tactical terminals and operate worldwide with existing military and commercial spacecraft. The user of HDR-RF Ground Terminals is the Global Hawk Ground Mission Control Element (MCE). HDR-RF funds in FY10 are for Risk Reduction efforts.
- 4) Joint Terminal Engineering Office (JTEO) provides tri-service coordination of terminal development, acquisition and fielding activities.
- 5) Global Broadcast Service (GBS) provides for development, systems engineering and integration, test, Transmission Security (TRANSEC) compliance development, and program office support of Receive Suites.

This effort is funded in Budget Activity 7, Operational System Development because some of its programs have completed Milestone C reviews and are in production.

Exhibit R-2a, RDT&E Project Justification

DATE

May 2009

BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0303601F MILSATCOM Terminals</b>	PROJECT NUMBER AND TITLE <b>2487 MILSATCOM Terminals</b>
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(U) <b>B. Accomplishments/Planned Program (\$ in Millions)</b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Continue concept/prototype demo/MILSATCOM Terminals roadmap/SATCOM funding	3.948	3.931	4.647
(U) Continue Family of Advanced Beyond Line-of-Sight Terminals (FAB-T) development	326.757	304.550	210.450
(U) Continue High Data Rate (HDR) RF Ground Terminal development	9.984	6.688	3.500
(U) Continue Joint Terminal Engineering Office (JTEO) Support	7.388	5.257	5.361
(U) Global Broadcast Service Terminal Development			3.536
(U) Program Support and Other related activities	14.599	13.756	30.199
(U) Total Cost	362.676	334.182	257.693

(U) <b>C. Other Program Funding Summary (\$ in Millions)</b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Aircraft Procurement, Air Force, Project 119992 (Budget Activity 5, P-27 and P-61, PE 0303601F only) (1)	0.000	0.000	72.872	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
(U) Other Procurement, Air Force, 'MILSATCOM Space', Project 836780 (Budget Activity 3, P-66, PE 0303601F only) (1) (1) Spares Included	105.408	105.704	108.644	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

NOTE: Related RDT&E costs for MILSATCOM satellite systems to which terminal development is linked can be found in RDT&E Budget Item Justification Sheets for the following Program Elements (PEs):

- PE 0303110F Defense Satellite Communication System (Space)
- PE 0603430F Advanced EHF MILSATCOM (Space)
- PE 0603845F Transformational SATCOM (TSAT)
- PE 0603432F Polar MILSATCOM (Space)
- PE 0603854F Wideband SATCOM (RDT&E) Space
- PE 0604479F Milstar LDR/MDR SATCOM (Space)
- PE 0604240F B-2 (RDT&E)
- PE 0101113F B-52 (RDT&E)
- PE 0305207F RC-135 (RDT&E)

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0303601F MILSATCOM Terminals

PROJECT NUMBER AND TITLE

2487 MILSATCOM Terminals

(U) **C. Other Program Funding Summary (\$ in Millions)**

PE 0603840F Global Broadcast Service (GBS) (RDT&E)

(U) **D. Acquisition Strategy**

FAB-T provides a Family of Beyond Line-of-Sight (BLOS) satellite communications (SATCOM) and Line-of-Sight (LOS) terminals with an open architecture to satisfy the requirements identified in the Advanced Wideband Terminal (AWT) and Command Post Terminal (CPT) Operational Requirements Documents (ORDs) and FAB-T Inc 1 Capability Development Document (CDD).

Increment 1 provides the layered architecture which enables support for evolving and new communication capabilities and technologies. Capabilities include transmission and reception of voice, data, imagery, and video as well as broadcast reception over protected and wideband SATCOM and LOS systems. Increment 1 also provides the capability for air and ground communications using the Milstar Extremely High Frequency (EHF) and Advanced Extremely High Frequency (AEHF) waveforms. Increment 1 terminals are planned for the B-2, B-52, and RC-135 aircraft and to upgrade the existing Command Post Terminals (CPTs) located on the ground (fixed and transportable) and airborne on the E-4 and E-6 aircraft.

Increment 2 will provide Analysis of Alternatives and solutions to transponded Ka band communications over Wideband Global SATCOM (WGS), transponded Ku band communications over commercial satellites and LOS capabilities using Multi-Platform Common Data Link (MP-CDL) capabilities.

The program strategy is to procure future increments using the open system architecture and adding functionality as funding becomes available and when requirements are identified. These increments may include providing SATCOM capability combinations of AEHF, Global Broadcast Service (GBS), and commercial wideband video and data services to over fifty-seven additional aircraft/platform types that are identified in the AWT Operational Requirements Document (ORD).

The HDR-RF Ground Terminal Program consists of three Phases. Phase 1, the Ground Modem Application Demonstration phase, consists of multiple contractors developing an SCA version 2.2.1 compliant, HDR-RF Ground HBHT modem, which will port/run a Government provided test waveform. This phase culminates in a demonstration/test of the vendor's modem hardware and facilitates HBHT SCA modem availability when the FAB-T Inc 2 developed operational waveform is complete. Phase 2 consists of porting and demonstrating of the FAB-T Increment 2 developed operational waveform, and qualifying the modem. Phase 3 consists of integrating/qualifying the HDR-RF ground modem into an existing quad band SATCOM terminal, obtaining appropriate certifications, producing, and fielding the system to communicate over the Wideband Global SATCOM using transponded Ka-band satellite communications.

GBS provides warfighters with a worldwide, seamless, high throughput broadcast information service to support today's and tomorrow's mission. The Receive Suite (RS) development will satisfy the portable receive suite requirements identified in the GBS Operational Requirements Document. (ORD) III Block-3. RS provides Special Operations use of GBS in operational areas; capabilities include reception of voice, data, imagery and video. The RS shall be manpackable and fit into a single rucksack with a weight limit of 20 pounds. The program strategy is to design, develop, and test a RS for special operation use and testing and integration to fulfill the GBS TRANSEC requirement.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>07 Operational System Development</b>				<b>0303601F MILSATCOM Terminals</b>					<b>2487 MILSATCOM Terminals</b>			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2008 Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date	Cost to Complete	Total Cost	Target Value of Contract
(U) <u>Product Development</u> FAB-T Development	CPAF	Boeing Corp., Huntington Beach, CA	684.252	308.954	Jan-08	268.875	Jan-09	178.169	Jan-10	Continuing	TBD	
FAB-T	Various	Various	28.380	6.838	Jan-08	29.825	Jan-09	32.281	Jan-10	Continuing	TBD	
High Data Rate (HDR) RF Ground Terminal Development	FFP	Comtech, Tempe, AZ	1.614	3.379	Jan-08					Continuing	TBD	
High Data Rate (HDR) RF Ground Terminal Development	FFP	Raytheon, Marborough, MA	2.985	3.380	Jan-08					Continuing	TBD	
High Data Rate (HDR) RF Ground Terminal Development	FFP	L3 Comm, Hauppauge, NY				2.700	Jan-09				2.700	
High Data Rate (HDR) RF Ground Terminal Development	TBD	3 contracts									0.000	
High Data Rate (HDR) RF Air Terminal Development (merged with FAB-T beginning in FY06)	CPAF	Boeing Corp., Huntington Beach, CA	13.787								13.787	
Lasercom Terminal Development Studies	FFP	Various	30.395								30.395	
Global Broadcast Service (GBS)	Various	Various						3.536	Feb-10		3.536	
Subtotal Product Development			761.413	322.551		301.400		213.986		Continuing	TBD	0.000
Remarks:												
(U) <u>Support</u> Systems Engineering Support	CPAF	MITRE, Bedford MA	220.335	20.426	Jan-08	16.183	Jan-09	18.438	Jan-10	Continuing	TBD	
Systems Engineering/Functional/Financial Support	Various	Various	232.151	12.168	Jan-08	11.676	Jan-09	14.481	Jan-10	Continuing	TBD	
Miscellaneous	Various	Various	32.112	2.431	Jan-08	2.080	Jan-09	5.218	Jan-10	Continuing	TBD	0.000
Subtotal Support			484.598	35.025		29.939		38.137		Continuing	TBD	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u> Various Programs	Various	AF Research Lab	25.018	5.100	Sep-08	2.843	Jan-09	5.570	Jan-10	Continuing	TBD	
Miscellaneous T&E	Various	Various	26.187							Continuing	TBD	0.000
Subtotal Test & Evaluation			51.205	5.100		2.843		5.570		Continuing	TBD	0.000
Remarks:												
(U) <u>Management</u>												0.000

R-1 Line Item No. 177

Page-6 of 9

Exhibit R-3 (PE 0303601F)

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY		PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE		
<b>07 Operational System Development</b>		<b>0303601F MILSATCOM Terminals</b>				<b>2487 MILSATCOM Terminals</b>		
Subtotal Management	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Remarks:								
(U) Total Cost	1,297.216	362.676	334.182	257.693	Continuing	TBD	0.000	

Exhibit R-4, RDT&E Schedule Profile

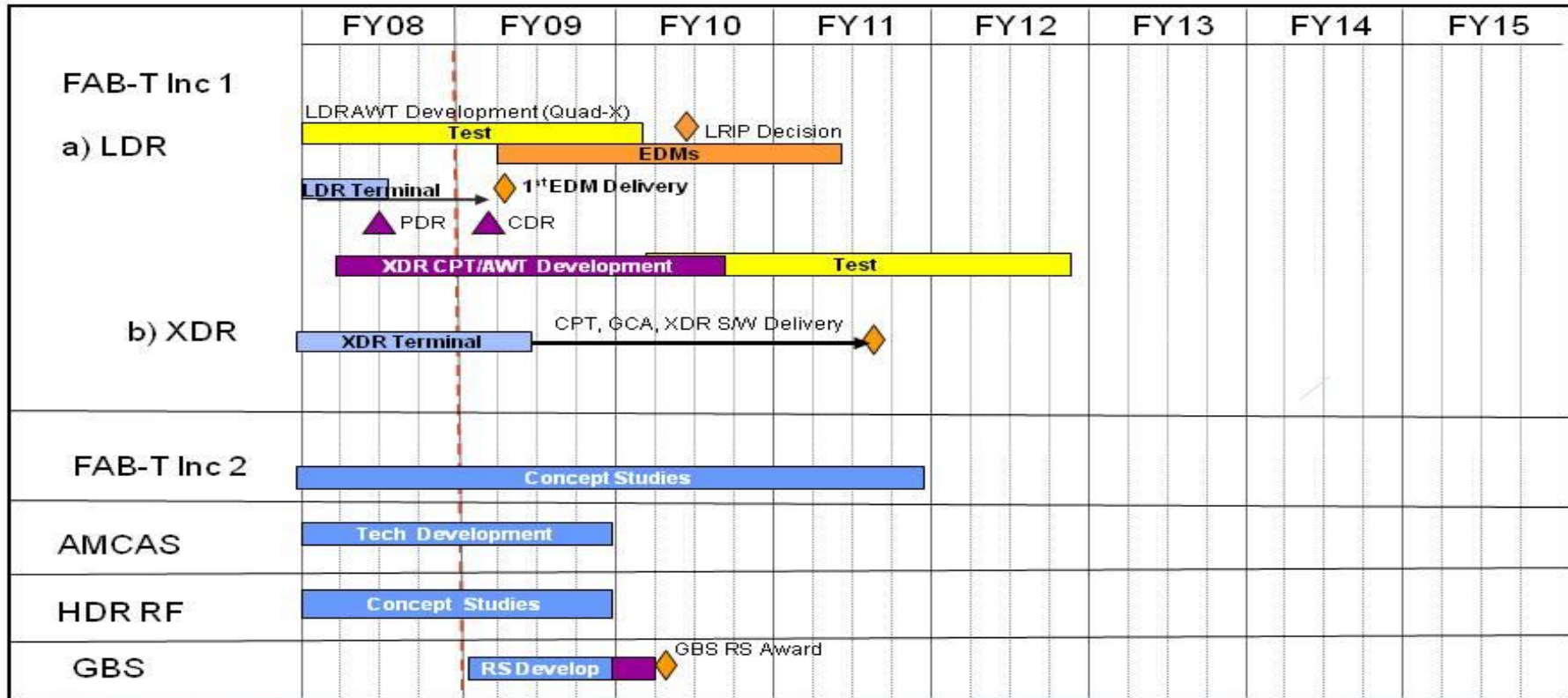
DATE  
May 2009

BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0303601F MILSATCOM Terminals

PROJECT NUMBER AND TITLE  
2487 MILSATCOM Terminals

MILSATCOM Terminals Schedule RDoc



CDR: Critical Design Review  
RS: Receive Suites

EDM: Engineering Design Model  
LDR: Low Data Rate

PDR: Preliminary Design Review  
XDR: Extended Data Rate

LRIP: Low Rate Initial Production

- Concept activities
- Design / Development
- Integration / Test
- Production / Fielding
- Operations / Sustainment
- Key events



Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0303601F MILSATCOM Terminals</b>	PROJECT NUMBER AND TITLE <b>2487 MILSATCOM Terminals</b>
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(U) <u>Schedule Profile</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) FAB-T (Inc 1) Extended Data Rate (XDR) Preliminary Design Review (PDR)	3Q		
(U) FAB-T (Inc 1) System CDR		1Q	
(U) FAB-T 1st Engineering Development Model (EDM) Delivery of LDR terminal		2Q	
(U) FAB-T Inc 2 Concept Studies	1-4Q	1-4Q	1-4Q
(U) GBS Receive Suite Award			2Q

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PE NUMBER: 0304260F

PE TITLE: Airborne SIGINT Enterprise (JMIP)

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0304260F Airborne SIGINT Enterprise (JMIP)</b>
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	138.346	173.160	176.989	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5180 RC-135 (Airborne SIGINT Development - RC-135)	49.061	48.958	42.619	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5182 MQ-1/MQ-9 (Airborne SIGINT Development - Predator)	13.533	2.710	59.886	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5183 Common Development (Airborne SIGINT Development - Common Development)	45.130	65.440	32.837	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5184 RQ-4 (Airborne SIGINT Development - Global Hawk)	10.817	41.803	29.099	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5185 Compass Bright (Airborne SIGINT Development - Compass Bright)	8.430	8.750	5.913	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5186 Special Programs (Airborne SIGINT Development - Special Platforms)	11.375	5.499	6.635	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

**(U) A. Mission Description and Budget Item Justification**

(U) This PE provides signals intelligence (SIGINT) development efforts for all USAF airborne platforms. The funds in this PE are distributed among all Airborne SIGINT Enterprise (ASE) projects based on the development priorities established by the USAF SIGINT Capabilities Working Group (SCWG) in order to build a total SIGINT capability. As a result, the USAF will move funds between projects periodically to develop the highest priority projects in response to urgent warfighter needs. This PE will participate in the development, integration, testing, and implementation of international standards (to include NATO standardization agreements) to ensure joint, allied, and coalition interoperability. Modernization efforts include sensors for the platforms and their appropriate interfaces with the Air Force Distributed Common Ground System (AF DCGS). This approach will allow a synergistic development effort to be accomplished while developing a true Air Force-wide capability. This enterprise will use the Air Force Cryptologic Architecture (AFCA) for planning and decision-making and, in turn, employ the Joint Airborne SIGINT Architecture (JASA) open architecture standards to allow maximum ease of future upgrades and system interoperability. The primary goal of the ASE is to produce an architecture-based, capability-focused SIGINT investment strategy for the USAF.

(U) Funds in any project may be used to fund initiatives in other projects within this PE at the discretion of the SCWG.

(U) Funds in any project can also cover activities to include studies and analysis to support both current program planning and execution and future program planning.

(U) This program is Budget Activity 7, Operational Systems Development, because it involves the development of SIGINT capabilities and integration with

Exhibit R-2, RDT&E Budget Item Justification

DATE

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0304260F Airborne SIGINT Enterprise (JMIP)

operational systems such as the RC-135, U-2, MQ-1/MQ-9, RQ-4, Special Programs (Senior Scout and others as required), their associated ground stations and data links, and Compass Bright programs.

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	135.162	173.631	169.364
(U) Current PBR/President's Budget	138.346	173.160	176.989
(U) Total Adjustments	3.184	-0.471	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.471	
Congressional Increases			
Reprogrammings	3.184		
SBIR/STTR Transfer			
(U) <u>Significant Program Changes:</u>			
Program increase in FY10 is for SIGINT on MQ-1/9.			

**Exhibit R-2a, RDT&E Project Justification**

DATE  
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BUDGET ACTIVITY <b>07 Operational System Development</b>					PE NUMBER AND TITLE <b>0304260F Airborne SIGINT Enterprise (JMIP)</b>			PROJECT NUMBER AND TITLE <b>5180 RC-135 (Airborne SIGINT Development - RC-135)</b>		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5180 RC-135 (Airborne SIGINT Development - RC-135)	49.061	48.958	42.619	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

(U) This project supports design studies, engineering analysis, non-recurring engineering, and other efforts associated with the integration and modification of the RC-135 SIGINT sensors and their associated air and ground components. Through extensive utilization of commercial-off-the-shelf (COTS)-based solutions to fielding of needed capabilities, it also incurs the need for continuous diminishing manufacturing sources integration efforts consistent with the COTS technology cycle.

(U) These efforts provide the requisite engineering for preliminary assessments of technical feasibility, operability, or military utility as well as specific engineering implementations integrated into the various baseline modifications.

(U) These funds will be split between the RIVET JOINT, COMBAT SENT, and COBRA BALL programs. Funding reflects the SIGINT Capabilities Working Group (SCWG) priorities and the accomplishment of other ASE initiatives.

(U) RC-135 Breakdown of funds (in millions):

	FY08	FY09	FY10
RIVET JOINT	42.261	42.191	35.719
COMBAT SENT	3.700	3.700	3.600
COBRA BALL	3.100	3.067	3.300

(U) This program effort is Budget Activity 7, Operational Systems Development, because it involves Air Force RDT&E necessary to field essential operational capabilities.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) (U) Initiates Non-Recurring Engineering (NRE) for the RC-135 SIGINT Systems SEE Classified Budget Exhibits (PE 0305207F)	49.061	48.958	42.619
(U) Total Cost	49.061	48.958	42.619

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>May 2009</b>
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BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0304260F Airborne SIGINT Enterprise (JMIP)</b>	PROJECT NUMBER AND TITLE <b>5180 RC-135 (Airborne SIGINT Development - RC-135)</b>
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**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to Complete</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>		
(U) (U) PE 0305207F, APAF	165.551	142.694	151.682						Continuing	TBD

(U) These funds within the PE 0305207F procure all necessary aircraft modifications for the RC-135 program and include those funds necessary to field SIGINT capabilities developed under Project 675180 of this Airborne SIGINT Enterprise.

**(U) D. Acquisition Strategy**

(U) Aircraft, aircraft sensor systems, and associated ground support system modifications planned include the procurement, fielding and logistical support for three distinct RIVET JOINT baseline configurations [baseline 8, 9, 10] and two distinct baselines [baselines 3 & 4] for COMBAT SENT and COBRA BALL. Development and integration managed by the Big Safari Systems Group; they employ evolutionary acquisition approaches to field incremental capability improvements.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0304260F Airborne SIGINT Enterprise (JMIP)</b>	PROJECT NUMBER AND TITLE <b>5180 RC-135 (Airborne SIGINT Development - RC-135)</b>
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(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
SIGINT Sensor Development and Integration	CPFF and FFP	L-3 COM Greenville, TX		49.061	Jan-08	48.958	Jan-09	42.619	Jan-10	Continuing	TBD	TBD
Subtotal Product Development			0.000	49.061		48.958		42.619		Continuing	TBD	TBD
Remarks:												
(U) Total Cost			0.000	49.061		48.958		42.619		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

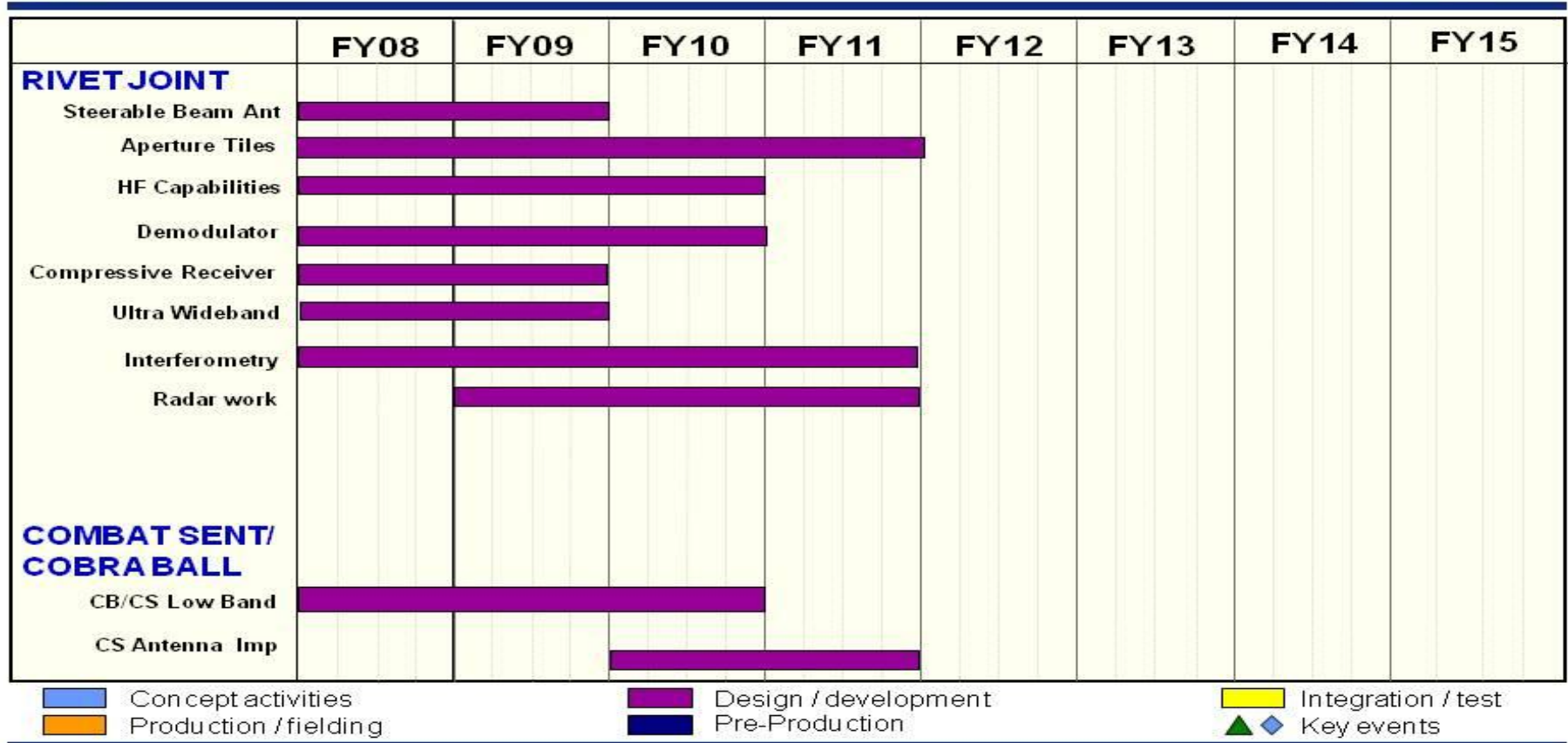
BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0304260F Airborne SIGINT Enterprise (JMIP)

PROJECT NUMBER AND TITLE  
5180 RC-135 (Airborne SIGINT Development - RC-135)



# RC-135 Development Efforts ASE PE



PB10 R-Docs

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R-1 Line Item No. 179

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Project 5180

Exhibit R-4 (PE 0304260F)



Exhibit R-4a, RDT&E Schedule Detail

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0304260F Airborne SIGINT Enterprise (JMIP)

PROJECT NUMBER AND TITLE

5180 RC-135 (Airborne SIGINT Development - RC-135)

(U) Schedule Profile

(U) Development of RIVET JOINT mission sensors

(U) Development of COMBAT SENT mission sensors

(U) Development of COBRA BALL mission sensors

Details are classified and are shown in the classified portion of PE 0305207F

FY 2008

1-4Q

1-4Q

1-4Q

FY 2009

1-4Q

1-4Q

1-4Q

FY 2010

1-4Q

**Exhibit R-2a, RDT&E Project Justification**

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BUDGET ACTIVITY <b>07 Operational System Development</b>					PE NUMBER AND TITLE <b>0304260F Airborne SIGINT Enterprise (JMIP)</b>			PROJECT NUMBER AND TITLE <b>5182 MQ-1/MQ-9 (Airborne SIGINT Development - Predator)</b>		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5182 MQ-1/MQ-9 (Airborne SIGINT Development - Predator)	13.533	2.710	59.886	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) MQ-1/9 SIGINT development efforts in the ASE PE began in FY07.

**(U) A. Mission Description and Budget Item Justification**

(U) This project supports design studies, engineering analysis, non-recurring engineering, and other efforts associated with the integration and modification of the MQ-1/MQ-9 SIGINT sensors and their associated air and ground components. This is an RTD&E effort to integrate SIGINT capability on to the MQ-1/MQ-9 platforms. The sensors shall be capable of collecting technical data and geolocating signals of interest and providing sensor data to a workstation. The integration effort shall include the use of existing sensor suites to the maximum extent possible to minimize design costs and reduce development time lines. Design efforts specific to the Predator or Reaper systems may include, but not be limited to, antennas, EMI reduction, encryption techniques, and changes to the aircraft, ground station, data link, and simulator necessary to accommodate a SIGINT payload and its data throughput.

(U) Funding will begin efforts on antennas, receivers, processors, software development, aircraft integration and ground station upgrades to allow a persistent reconnaissance, surveillance, targeting, and acquisition capability against mission specific threats. Development of a networked capability to other SIGINT platforms will also be initiated.

(U) In accordance with an evolutionary acquisition strategy, a series of ASIP incremental upgrades will begin preliminary design activities to support incremental software and hardware upgrades in FY10. These upgrades are designed to exploit evolving signals of interest to meet emerging operational requirements.

(U) This project provides the warfighter with increased combat capability as soon as technology and risk achieve satisfactory levels.

(U) This program effort is Budget Activity 7, Operational Systems Development, because it involves Air Force RDT&E necessary to field essential operational capabilities.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Signals Intelligence (SIGINT) Sensor Development/Integration for MQ-1/9	9.033	2.710	57.551
(U) ASIP Upgrade Increment 1 (COMINT Improvements)			2.335
(U) Special Projects	4.500		
(U) Total Cost	13.533	2.710	59.886

Exhibit R-2a, RDT&E Project Justification

DATE

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0304260F Airborne SIGINT Enterprise (JMIP)

PROJECT NUMBER AND TITLE

5182 MQ-1/MQ-9 (Airborne SIGINT Development - Predator)

(U) **C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) APAF (BP11)- 0305219F MQ-1		26.690	29.630							56.320

(U) **D. Acquisition Strategy**

(U) Signals Intelligence (SIGINT) capabilities will be integrated onto these platforms using an evolutionary acquisition approach.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE				
<b>07 Operational System Development</b>				<b>0304260F Airborne SIGINT Enterprise (JMIP)</b>				<b>5182 MQ-1/MQ-9 (Airborne SIGINT Development - Predator)</b>				
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2008 Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date	Cost to Complete	Total Cost	Target Value of Contract
(U) <u>Product Development</u>												
SIGINT Sensors Integration	CPFF	General Atomics, San Diego, CA		1.186	Jan-09	0.536	Jan-09			Continuing	TBD	TBD
SIGINT Sensors Development	Various	Northrop Grumman ESL, San Jose, CA	2.428	6.523	Apr-08	2.174	Dec-08	59.886	Jan-10	Continuing	TBD	TBD
Management, Various Integration Efforts, & Flight Test	Various	Various		5.824	Mar-08					Continuing	TBD	TBD
Subtotal Product Development			2.428	13.533		2.710		59.886		Continuing	TBD	TBD
Remarks:												
(U) Total Cost			2.428	13.533		2.710		59.886		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

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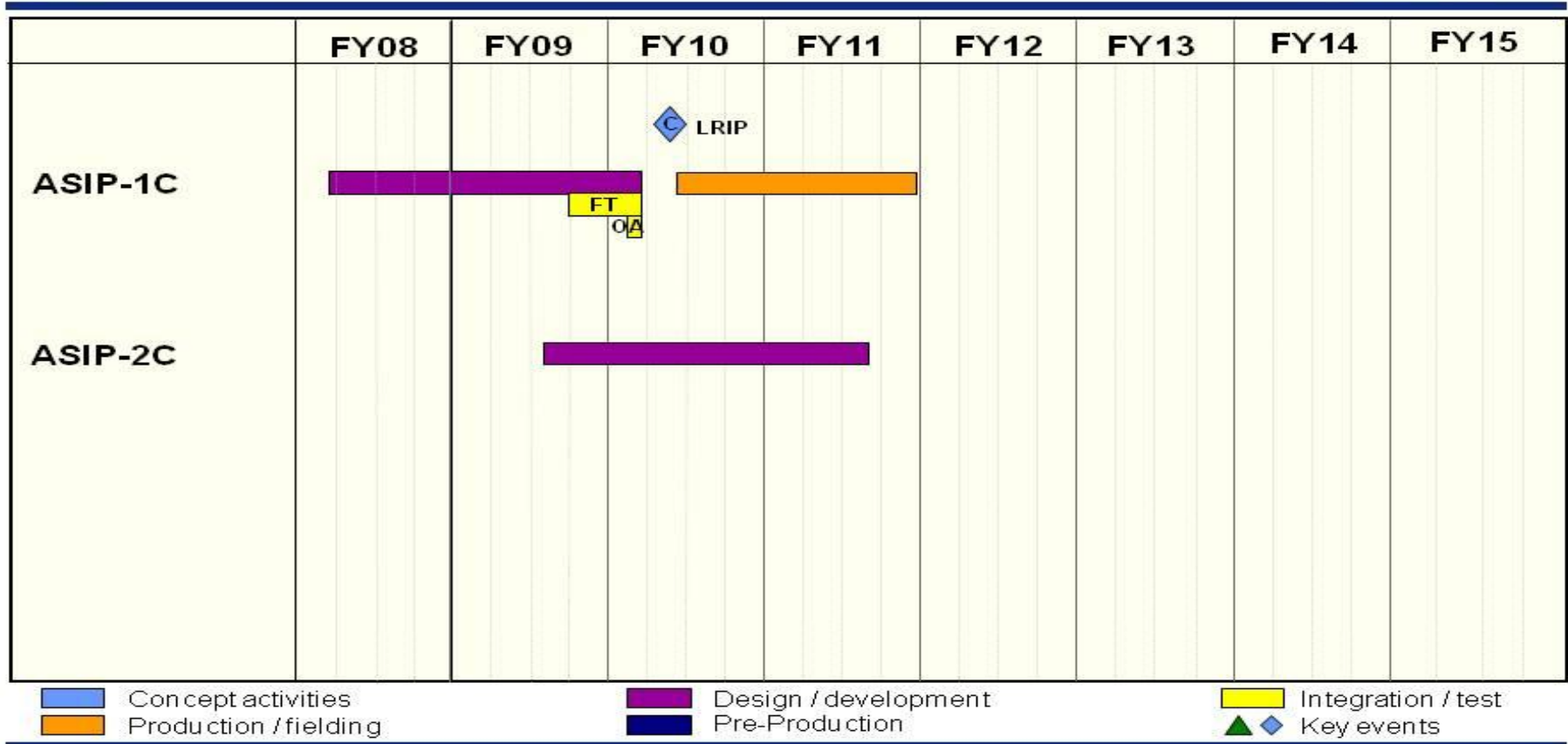
BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0304260F Airborne SIGINT Enterprise (JMIP)

PROJECT NUMBER AND TITLE  
5182 MQ-1/MQ-9 (Airborne SIGINT Development - Predator)



# ASIP-1C/2C Development Efforts ASE PE



**PB10 R-Docs**

Depicted by installation/production flow

1

Exhibit R-4a, RDT&E Schedule Detail

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0304260F Airborne SIGINT Enterprise (JMIP)

PROJECT NUMBER AND TITLE

5182 MQ-1/MQ-9 (Airborne SIGINT Development - Predator)

(U) Schedule Profile

FY 2008

FY 2009

FY 2010

(U) ASIP 1C Development & Flight Test

1-4Q

1-4Q

1Q

(U) ASIP 2C Development & Flight Test

1-4Q

1-4Q

1-4Q

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

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BUDGET ACTIVITY <b>07 Operational System Development</b>		PE NUMBER AND TITLE <b>0304260F Airborne SIGINT Enterprise (JMIP)</b>					PROJECT NUMBER AND TITLE <b>5183 Common Development (Airborne SIGINT Development - Common Development)</b>			
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5183 Common Development (Airborne SIGINT Development - Common Development)	45.130	65.440	32.837	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) This project supports the development of the Airborne Signals Intelligence payload (ASIP) sensors for use on multiple platforms as well as projects common to the ASE PE overall to include, but not limited to: Air Force Cryptologic Architecture (AFCA) maintenance, modeling and simulation efforts and NATO Signals Intelligence (SIGINT) efforts.

(U) **A. Mission Description and Budget Item Justification**

(U) This project supports design studies, engineering analysis, non-recurring engineering, and other efforts associated with the integration and modification of sensors and their associated air and ground components that will be used on/by more than one platform. The common development SIGINT cost element/BPAC supports development of new sensors and maintains present capability by developing replacements for current components affected by diminishing manufacturing sources as well as enhancing capability via incremental development to exploit evolving signals of interest to meet emerging operational requirements. The current sensors being developed are the Airborne Signals Intelligence Payload (ASIP) (which has completed developmental testing on the U-2 and is being tested on the Global Hawk (RQ-4)), and the scalable ASIP payloads for the MQ-1 (ASIP 1C) and the MQ-9 (ASIP 2C). The systems' open architecture and Joint Airborne SIGINT Architecture (JASA) compliant design supports streamlined integration of ASIP onto additional ISR platforms.

(U) The ASIP Family of Systems will design and build a common/scalable SIGINT system designed for maximum coverage of the electromagnetic spectrum through the use of an integrated high and low band system. ASIP will deliver developmental units for integration and test on both the RQ-4 and U-2. ASIP 1C and ASIP 2C will deliver developmental units (DUs) for integration and test on the MQ-1 and MQ-9. U-2 test articles completed integration and test in 4Q FY06, began flight test in 1Q FY07, and completed flight test in 3Q FY08. The Global Hawk DU began flight test in 4Q FY08 and is scheduled to complete flight testing in 1Q FY10. In accordance with an evolutionary acquisition strategy, a series of ASIP incremental upgrades will begin preliminary design activities to support incremental software and hardware upgrades in FY09. These upgrades will begin with the COMINT improvements program and will continue with individual development efforts to exploit signals of interest identified as operational requirements and as prioritized by the Air Force SIGINT Capabilities Working Group.

(U) This strategy provides the warfighter with a near term combat capability with increased capability improvements accomplished based on the evolving threat as soon as technology and risk achieve satisfactory levels. Sensors will be integrated and tested on the various platforms as funding permits.

(U) This program effort is Budget Activity 7, Operational Systems Development, because it involves Air Force RDT&E necessary to field essential operational capabilities.

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0304260F Airborne SIGINT Enterprise (JMIP)</b>	PROJECT NUMBER AND TITLE <b>5183 Common Development (Airborne SIGINT Development - Common Development)</b>
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(U) <b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) ASIP Baseline Development/Integration	32.062	27.505	
(U) ASIP Upgrade Increment 1 (COMINT Improvements)		5.692	27.636
(U) ASIP Upgrade Increment 3			
(U) ASIP 1C/2C Development/Integration	9.000	29.843	2.601
(U) Various SIGINT Architecture Efforts	1.468	2.400	2.600
(U) Various NATO SIGINT Efforts	1.600		
(U) Special Projects (JUON) & Other Various SIGINT Efforts	1.000		
(U) Total Cost	45.130	65.440	32.837

(U) <b><u>C. Other Program Funding Summary (\$ in Millions)</u></b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) APAF (BP10)- 0305220F-RQ-4 Sensor Integration- Sensor Development		63.826	65.121							128.947
(U) APAF (BP11)- 0305220F-RQ-4 Sensor Integration- Sensor Development	18.167	89.485	129.613							237.265
(U) APAF (BP11)- 0305219F MQ-1		26.690	29.630							56.320

Note: Additional procurement funding for GH ASIP spares, support equipment, & depot activation costs is TBD.

(U) **D. Acquisition Strategy**  
 Signals Intelligence (SIGINT) capabilities will be developed and integrated onto various platforms using an evolutionary acquisition approach.



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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0304260F Airborne SIGINT Enterprise (JMIP)</b>	<b>PROJECT NUMBER AND TITLE</b> <b>5183 Common Development (Airborne SIGINT Development - Common Development)</b>
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<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
(U) ASIP Baseline Development/Integration	CPAF	Northrop Grumman, San Jose, CA	84.333	21.881	Nov-07	14.392	Jan-09				120.606	TBD
(U) ASIP Baseline Development/Integration	CPIF	Lockheed Martin Aeronautics, Palmdale, CA	17.569	0.212	Dec-07	0.171	Jan-09				17.952	TBD
(U) ASIP Baseline Development/Integration (AFDCGS Integration)	CPIF	Lockheed Martin Astronautics, Denver, CO	8.530	3.405	Jan-08	3.965	Jan-09				15.899	TBD
(U) ASIP Baseline Development/Integration (AFDCGS Integration)	CPIF	Raytheon, Falls Church, VA	12.756	3.233	Nov-07	2.737	Jan-09				18.727	TBD
(U) ASIP Upgrades Development/Integration	TBD	Northrop Grumman, San Jose, CA				5.692	Aug-09	27.636	Jan-10	Continuing	TBD	TBD
(U) ASIP 1C/2C Development/Integration	CPIF	Northrop Grumman, San Jose, CA		9.000	Apr-08	21.495	Dec-08	2.601	Oct-09		33.096	
(U) ASIP 1C/2C Development/Integration (MQ-1 Integration)	CPFF	General Atomic Aeronautical Systems, Inc				3.422	Jan-09				3.422	TBD
(U) High Band System			4.874								4.874	
(U) Various SIGINT Architecture Efforts	Various	Various	1.338	1.468	Jan-08	2.400	Jan-09	2.600	Jan-10	Continuing	TBD	TBD
(U) Various NATO SIGINT Efforts	Various	Various		1.600	Aug-08						1.600	
(U) Management, Various Integration Efforts, & Flight Test	Various	Various	8.745	3.331	Dec-07	11.166	Jan-09			Continuing	TBD	TBD
(U) Special Projects (JUON)	TBD	TBD		1.000	Jan-09						1.000	
Subtotal Product Development			138.144	45.130		65.440		32.837		Continuing	TBD	TBD
Remarks:												
(U) Total Cost			138.144	45.130		65.440		32.837		Continuing	TBD	TBD

R-1 Line Item No. 179

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Project 5183

Exhibit R-3 (PE 0304260F)

Exhibit R-4, RDT&E Schedule Profile

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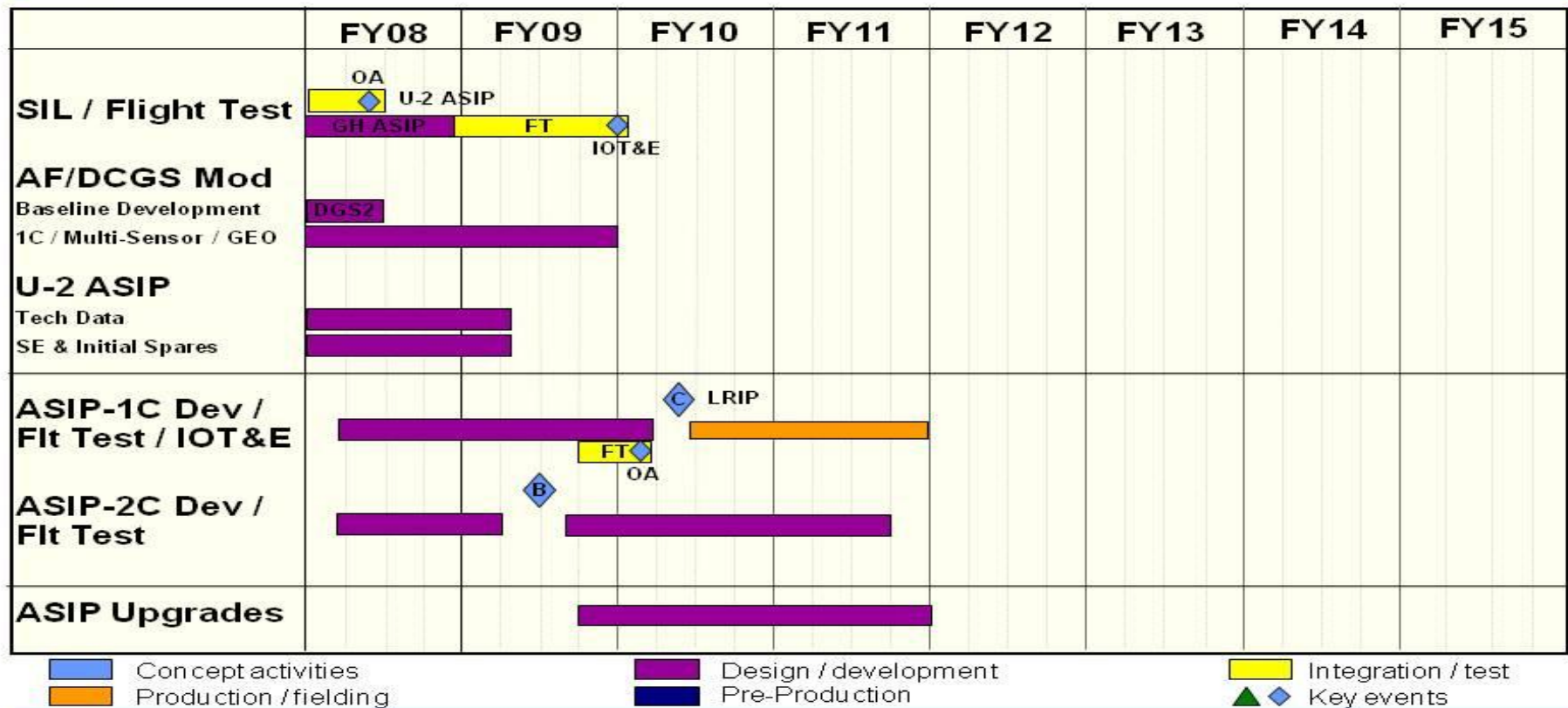
BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0304260F Airborne SIGINT Enterprise (JMIP)

PROJECT NUMBER AND TITLE  
5183 Common Development (Airborne SIGINT Development - Common Development)



# ASIP Common Development Schedule



PB10 R-Docs

Depicted by in stallation/production flow

1

Exhibit R-4a, RDT&E Schedule Detail

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BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0304260F Airborne SIGINT Enterprise (JMIP)</b>	PROJECT NUMBER AND TITLE <b>5183 Common Development (Airborne SIGINT Development - Common Development)</b>
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(U) <u>Schedule Profile</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) ASIP U-2 System Integration Lab (SIL) & Flight Test (FT)	1-2Q		
(U) ASIP GH SIL & FT	1-4Q	1-4Q	1Q
(U) AF DCGS Development- ASIP U-2	1-2Q		
(U) AF DCGS Development- ASIP 1C (Multi-Sensor & GEO)	1-4Q	1-4Q	
(U) ASIP U-2 Tech Data	1-4Q	1-2Q	
(U) ASIP U-2 Support Equipment & Initial Spares	1-4Q	1-2Q	
(U) ASIP 1C Development & Flight Test	1-4Q	1-4Q	1Q
(U) ASIP 2C Development & Flight Test	1-4Q	1-4Q	1-4Q
(U) ASIP Upgrades		4Q	1-4Q

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>					PE NUMBER AND TITLE <b>0304260F Airborne SIGINT Enterprise (JMIP)</b>			PROJECT NUMBER AND TITLE <b>5184 RQ-4 (Airborne SIGINT Development - Global Hawk)</b>		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5184 RQ-4 (Airborne SIGINT Development - Global Hawk)	10.817	41.803	29.099	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) This project covers RQ-4 SIGINT development integration in the ASE PE.

**(U) A. Mission Description and Budget Item Justification**

(U) This project supports sensor integration and test, flight test, design studies, engineering analysis and non-recurring engineering of the air and ground components for the Global Hawk SIGINT sensors.

(U) This project provides the warfighter with a near-term combat capability with increased capability improvements implemented as soon as technology and risk achieve satisfactory levels. The current sensor being developed for the Global Hawk SIGINT capability is the Airborne Signals Intelligence Payload (ASIP). In accordance with an evolutionary acquisition strategy, a series of ASIP incremental upgrades will begin preliminary design activities to support incremental software and hardware upgrades in FY09. These upgrades are designed to exploit service priorities for signals of interest and recognized operational requirements.

(U) Funding includes completion of developmental logistics tasks associated with the design, development, and integration of ASIP. Additional requirements include the Logistics Support Analysis (LSA) Taskings which consists of design and development of support equipment, technical orders, training courses/aids/devices, and shipping containers common to ASIP for U-2 and Global Hawk.

(U) This program effort is equivalent to RDT&E budget activity 7, Operational Systems Development, because it involves Air Force R&D necessary to field essential operational capabilities.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) ASIP Baseline- Development/Integration for GH Aircraft	10.817	10.703	
(U) ASIP Upgrade Increment 1 (COMINT Improvements)			5.599
(U) ASIP LSA Taskings		31.100	23.500
(U) Total Cost	10.817	41.803	29.099

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) APAF (BP10)- 0305220F-RQ-4 Sensor Integration- Sensor Development		63.826	65.121							128.947

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>May 2009</b>
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BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0304260F Airborne SIGINT Enterprise (JMIP)</b>	PROJECT NUMBER AND TITLE <b>5184 RQ-4 (Airborne SIGINT Development - Global Hawk)</b>
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(U) **C. Other Program Funding Summary (\$ in Millions)**

(U) APAF (BP11)-

0305220F-RQ-4 Sensor	18.167	89.485	129.613		237.265
Integration- Sensor					
Development					

(U) **D. Acquisition Strategy**

(U) Signals Intelligence (SIGINT) capabilities will be integrated on to this platform using an Evolutionary Acquisition approach.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE				
<b>07 Operational System Development</b>				<b>0304260F Airborne SIGINT Enterprise (JMIP)</b>					<b>5184 RQ-4 (Airborne SIGINT Development - Global Hawk)</b>				
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>	
(U) <u>Product Development</u>													
ASIP Baseline- Development/Integration for GH aircraft	CPAF	Northrop Grumman Mission Sys, San Jose, CA	15.437	10.817	Oct-07						26.254	TBD	
ASIP Upgrade Increment 1 (COMINT Improvements)	TBD	Northrop Grumman Mission Sys, San Jose, CA				10.703	Aug-09	5.599	Jan-10	Continuing	TBD	TBD	
ASIP LSA Taskings	TBD	Northrop Grumman Mission Sys, San Jose, CA				30.930	Feb-09	23.500	Jan-10	Continuing	TBD	TBD	
Management, Various Integration Efforts, & Flight Test						0.170	Feb-09				0.170		
Subtotal Product Development			15.437	10.817		41.803		29.099		Continuing	TBD	TBD	
Remarks:													
(U) Total Cost			15.437	10.817		41.803		29.099		Continuing	TBD	TBD	

Exhibit R-4, RDT&E Schedule Profile

DATE  
May 2009

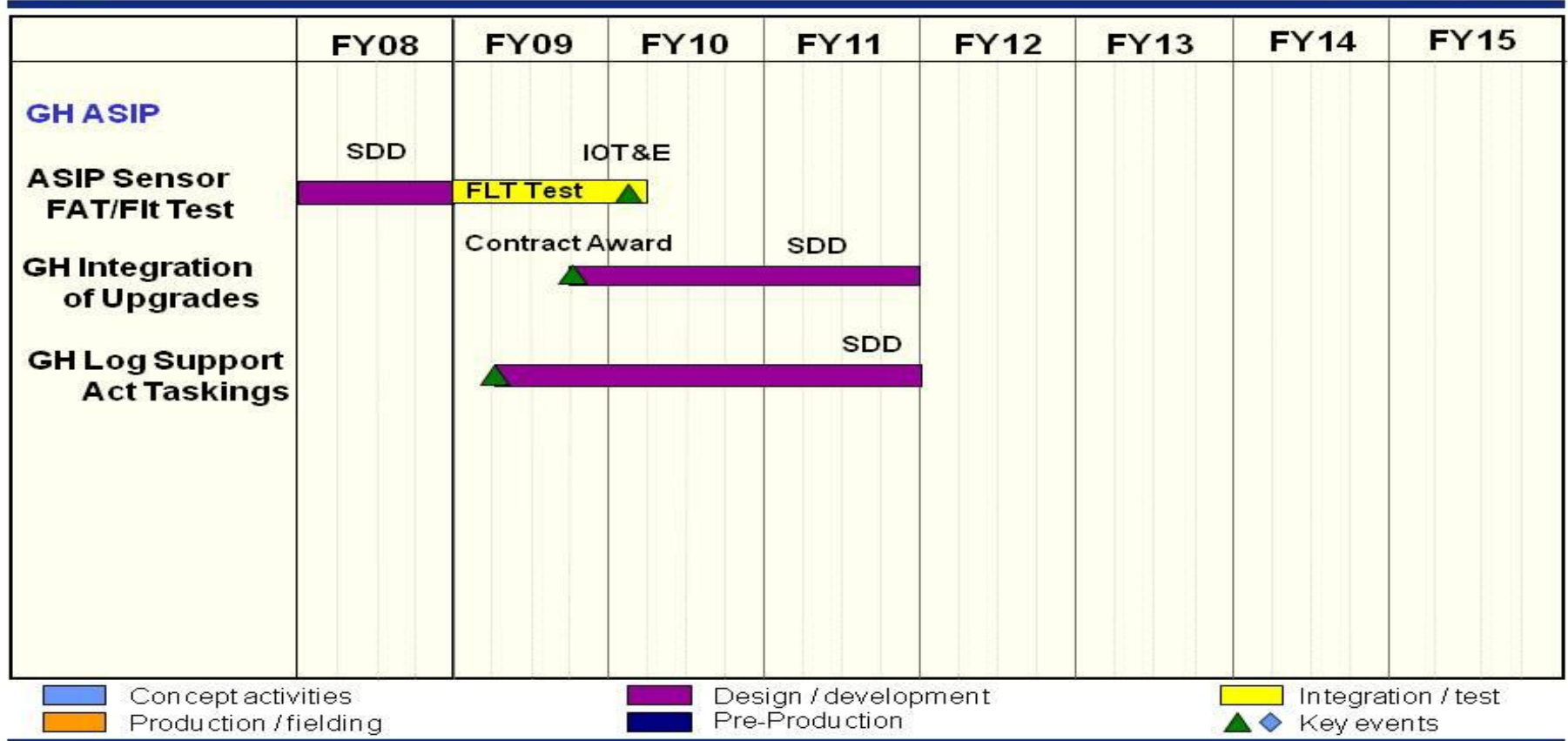
BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0304260F Airborne SIGINT Enterprise (JMIP)

PROJECT NUMBER AND TITLE  
5184 RQ-4 (Airborne SIGINT Development - Global Hawk)



# RQ-4 Global Hawk ASIP ASE PE



PB10 R-Docs

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Exhibit R-4a, RDT&E Schedule Detail

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0304260F Airborne SIGINT Enterprise (JMIP)

PROJECT NUMBER AND TITLE

5184 RQ-4 (Airborne SIGINT Development - Global Hawk)

(U) Schedule Profile

(U) GH ASIP Sensor Factory Acceptance Test & Flight Test

(U) GH ASIP Upgrade Increment 1 (COMINT Improvements)

(U) GH ASIP LSA Taskings

FY 2008

1-4Q

FY 2009

1-4Q

4Q

2-4Q

FY 2010

1Q

1-4Q

1-4Q



**Exhibit R-2a, RDT&E Project Justification**

DATE  
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BUDGET ACTIVITY <b>07 Operational System Development</b>				PE NUMBER AND TITLE <b>0304260F Airborne SIGINT Enterprise (JMIP)</b>				PROJECT NUMBER AND TITLE <b>5185 Compass Bright (Airborne SIGINT Development - Compass Bright)</b>			
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total	
5185 Compass Bright (Airborne SIGINT Development - Compass Bright)	8.430	8.750	5.913	0.000	0.000	0.000	0.000	0.000	Continuing	TBD	
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0			

Funding decreased in FY10 to reflect the SIGINT Capabilities Working Group (SCWG) priorities and the accomplishment of other ASE initiatives.

**(U) A. Mission Description and Budget Item Justification**

(U) The COMPASS BRIGHT program develops, demonstrates, and rapidly transitions advanced Air Force-specific SIGINT and radio frequency (RF) measurement and signature intelligence (MASINT) capabilities against emerging and future target signals. It is the only USAF program that pursues SIGINT and RF MASINT technology transition.

(U) The COMPASS BRIGHT program objective is to develop technologies for application in SIGINT and RF MASINT systems/subsystems. Acquisition and production of these developed technologies will occur within the appropriate platform programs.

(U) Compass Bright projects are selected through a data call process whereby the USAF evaluates proposals from the labs and industry to select those projects that are most promising.

(U) This program is categorized as Budget Activity 7 because it provides for development of technologies and capabilities in support of operational system development.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Continue COMPASS BRIGHT development projects in the signals intelligence (SIGINT) and radio frequency (RF) measurement and signature intelligence (MASINT) areas	7.615	7.855	5.018
(U) Mission Support, Program Management Activities	0.815	0.895	0.895
(U) Total Cost	8.430	8.750	5.913

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to Complete</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>		
(U) N/A										

**(U) D. Acquisition Strategy**

(U) Ongoing COMPASS BRIGHT technology development and demonstration contracts will continue through existing laboratory relationships and other existing contractual vehicles, with future development projects emphasizing full and open competition.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>07 Operational System Development</b>				<b>0304260F Airborne SIGINT Enterprise (JMIP)</b>					<b>5185 Compass Bright (Airborne SIGINT Development - Compass Bright)</b>			
<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
<u>(U) Product Development</u>												
Various	Various	AFRL	7.478	7.615	Jul-08	7.855	Oct-08	5.018	Oct-09	Continuing	TBD	TBD
Subtotal Product Development			7.478	7.615		7.855		5.018		Continuing	TBD	TBD
Remarks:												
<u>(U) Management</u>												
ASC/303 AESW (Aeronautical Systems Wing)		WPAFB, OH	0.709	0.815		0.895		0.895		Continuing	TBD	TBD
Subtotal Management			0.709	0.815		0.895		0.895		Continuing	TBD	TBD
Remarks:												
<u>(U) Total Cost</u>			8.187	8.430		8.750		5.913		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

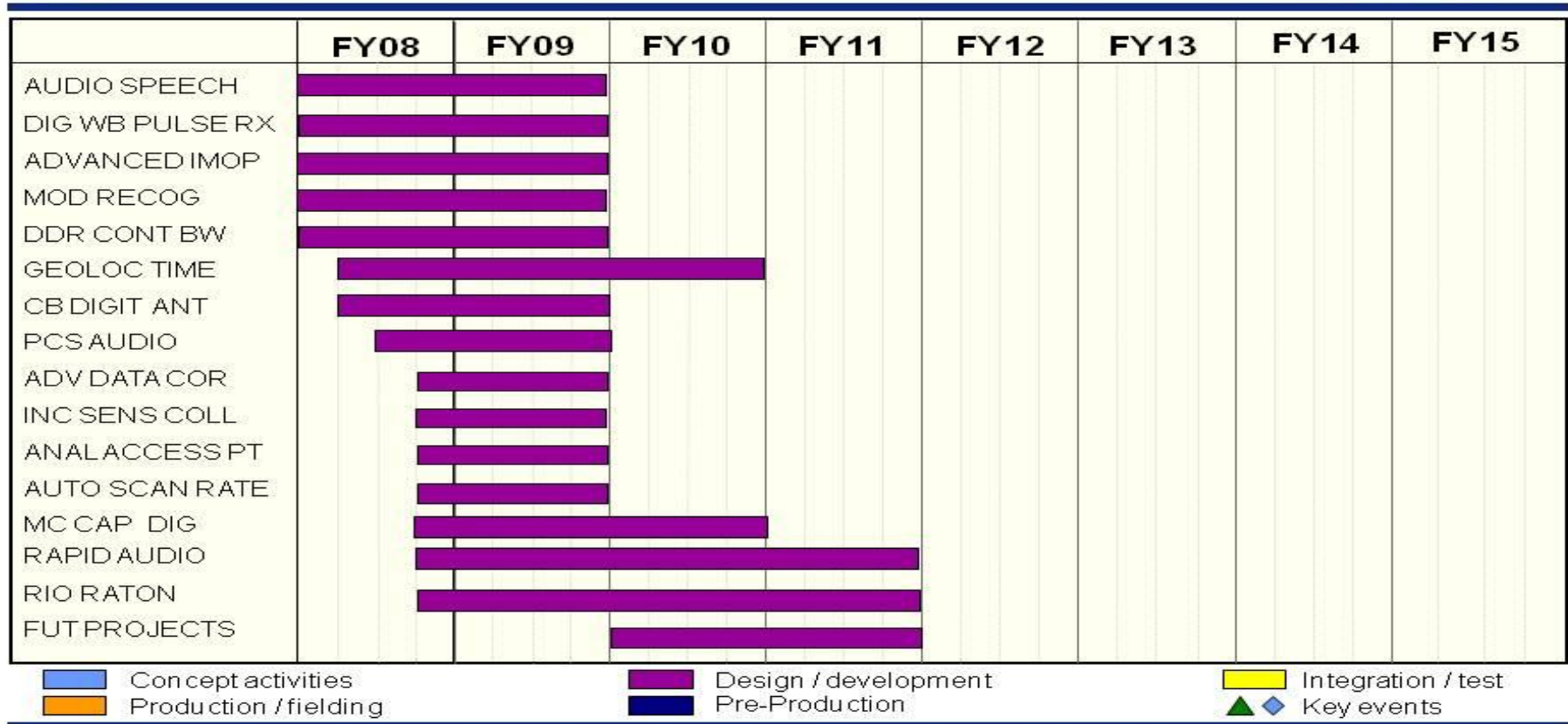
BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0304260F Airborne SIGINT Enterprise (JMIP)

PROJECT NUMBER AND TITLE  
5185 Compass Bright (Airborne SIGINT Development - Compass Bright)



# Compass Bright Schedule ASE PE



PB10 R-Docs

Depicted by in stallation/production flow

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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0304260F Airborne SIGINT Enterprise (JMIP)</b>	<b>PROJECT NUMBER AND TITLE</b> <b>5185 Compass Bright (Airborne SIGINT Development - Compass Bright)</b>
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<b>(U) <u>Schedule Profile</u></b>	<b><u>FY 2008</u></b>	<b><u>FY 2009</u></b>	<b><u>FY 2010</u></b>
(U) Wide Screen	1-2Q		
(U) Audio Speech Privacy ID Detector	1-4Q	1-4Q	
(U) Event Detection Receiver	1-4Q		
(U) Ultra Sensitive Receiver	1-4Q		
(U) Composite View	1-4Q		
(U) Digital Wideband Pulse Receiver	1-4Q	1-4Q	1Q
(U) PCS Audio Speaker Search System	3-4Q	1-4Q	
(U) Advanced IMOP Classifier	1-4Q	1-4Q	
(U) Modulation Recognition Using Cell Processors	1-4Q	1-4Q	
(U) DDR Continuous Recording Bandwidth Improvement	1-4Q	1-4Q	
(U) Geolocation Time Experiment (Geo/Timex)	2-4Q	1-4Q	1-4Q
(U) Cobra Ball Digitizing Antenna	2-4Q	1-4Q	
(U) Multi-Channel Capabilities for Digital SIGNIT System	4Q	1-4Q	1-4Q
(U) Rio Raton Digital Receiver	4Q	1-4Q	1-4Q
(U) Automated Scan Rate Determination	4Q	1-4Q	
(U) Rapid Audio Batch Toolkit (RABT)	4Q	1-4Q	1-4Q
(U) Analyst Access Point	4Q	1-4Q	
(U) Advanced Data Correlation	4Q	1-4Q	
(U) Increased Sensitivity for Specialized Collections	4Q	1-4Q	
(U) Future SIGINT Projects		2-4Q	1-4Q

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0304260F Airborne SIGINT Enterprise (JMIP)</b>	<b>PROJECT NUMBER AND TITLE</b> <b>5186 Special Programs (Airborne SIGINT Development - Special Platforms)</b>
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5186 Special Programs (Airborne SIGINT Development - Special Platforms)	11.375	5.499	6.635	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) This project will be used to fund SIGINT development efforts in programs such as SENIOR SCOUT, Small UAVs and others.

**(U) A. Mission Description and Budget Item Justification**

(U) This project supports special SIGINT studies as well as the development and integration of advanced SIGINT capabilities on Senior Scout and other classified platforms. Through extensive utilization of COTS-based solutions to fielding of needed capabilities, it also incurs the need for continuous diminishing manufacturing sources integration efforts consistent with the COTS technology cycle.

(U) Senior Scout development efforts will include antenna improvements, sensitivity upgrades, and radio frequency distribution upgrades. Additionally, development will begin to allow this platform to network with other SIGINT assets to increase collection accuracy.

(U) This project provides the warfighter with a near term combat capability with increased capability improvements accomplished as soon as technology and risk achieve satisfactory levels. Sensors will be integrated and tested on various platforms as funding permits.

(U) Budget Activity Justification: This program effort is Budget Activity 7, Operational Systems Development, because it involves Air Force RDT&E necessary to field essential operational capabilities.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Signals Intelligence (SIGINT) Sensor Integration	11.375	5.499	6.635
(U) Total Cost	11.375	5.499	6.635

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to Complete</u>	<u>Total Cost</u>
(U) 0503115F	3.671	3.970	4.063						Continuing	TBD

**(U) D. Acquisition Strategy**

(U) Signals Intelligence (SIGINT) capabilities will be integrated on to various classified platforms using an Evolutionary Acquisition approach.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0304260F Airborne SIGINT Enterprise (JMIP)</b>	<b>PROJECT NUMBER AND TITLE</b> <b>5186 Special Programs (Airborne SIGINT Development - Special Platforms)</b>
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(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>SIGINT Sensor Development</u> LM IS&GS Subtotal SIGINT Sensor Development Remarks:	Various	Denver CO	2.307 2.307	4.665 4.665	Apr-08	3.644 3.644	Dec-08	4.000 4.000	Dec-09	Continuing Continuing	TBD TBD	TBD TBD
(U) <u>SIGINT Sensor Development</u> Zeta Associates Subtotal SIGINT Sensor Development Remarks:	Various	Fairfax VA	1.905 1.905	1.745 1.745	Oct-07	1.855 1.855	Oct-08	2.635 2.635	Dec-09	Continuing Continuing	TBD TBD	TBD TBD
(U) <u>SIGINT Sensor Fusion and Dissemination</u> L-3 West  Subtotal SIGINT Sensor Fusion and Dissemination Remarks:	Various	Salt Lake City, UT	0.000 0.000	4.965 4.965	Apr-08	0.000 0.000		0.000 0.000		Continuing Continuing	TBD TBD	TBD TBD
(U) Total Cost			4.212	11.375		5.499		6.635		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0304260F Airborne SIGINT Enterprise (JMIP)

PROJECT NUMBER AND TITLE  
5186 Special Programs (Airborne SIGINT Development - Special Platforms)



## Special Projects Development Efforts ASE PE

	FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY15
<b>SENIOR SCOUT</b>								
Antenna Improvements		■						
JCID 4.0		■						

■ Concept activities  
■ Production / fielding

■ Design / development  
■ Pre-Production

■ Integration / test  
▲ ◆ Key events

**PB10 R-Docs**

Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0304260F Airborne SIGINT Enterprise (JMIP)

PROJECT NUMBER AND TITLE

5186 Special Programs (Airborne SIGINT Development - Special Platforms)

(U) Schedule Profile

FY 2008

FY 2009

FY 2010

(U) Antenna Improvements

1-4Q

1-4Q

(U) JCID 4.0

1-4Q

1-4Q

1-4Q



<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>									DATE <b>May 2009</b>	
<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>					<b>PE NUMBER AND TITLE</b> <b>0305099F Communication, Navigation, Surveillance/Air Traffic Management (CNS/ATM)</b>					
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	7.203	6.258	6.028	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
4689 Global Access Architecture	7.203	6.258	6.028	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

**(U) A. Mission Description and Budget Item Justification**

Communication, Navigation, Surveillance/Air Traffic Management (CNS/ATM): the Air Force (AF) program is designed to ensure that all AF acquisitions and modifications conform to appropriate CNS/ATM and Navigation Safety performance requirements to enable access to worldwide civil managed airspace. CNS/ATM and Navigation Warfare (NAVWAR) are major components of the DoD's Global Access, Navigation, and Safety (GANS) management effort. The 853 Electronic Systems Group (ELSG) supports CNS/ATM as the AF's central focal point for identifying, analyzing, and evaluating aviation authority civil operational airspace requirements worldwide. Additionally, they identify, analyze, and evaluate the technical performance requirements of the CNS capabilities and assist the platform program offices in the specific integration of the tailored capabilities required to ensure access to civil airspace. Furthermore, Department of Defense policy states that military platforms conducting peacetime operations will conform to applicable rules to ensure interoperability and transparency within national and international airspace. Also the 853 ELSG supports AF aircraft Single Managers in verifying the system's end-to-end performance for each CNS capability integrated into AF aircraft. Per AFPD 63-13, the 853 ELSG will develop and maintain CNS/ATM performance matrices used to identify specific CNS/ATM requirements for each AF aircraft. The 853 ELSG will provide acquisition and engineering support services through the entire acquisition framework to include development of technical architectures, program management reviews and test planning. Furthermore, the 853 ELSG will develop and award Indefinite Delivery/Indefinite Quantity contracts for centralized procurement and sustainment of CNS/ATM and Nav Safety products and promote commonality of CNS equipment and architectures between aircraft. The 853 ELSG will also participate in the development of Operational Safety, Suitability and Effectiveness assurance and Airworthiness Certification Plans. Dual-use capabilities of avionics to satisfy both civil and military CNS/ATM requirements will be explored as well as enhancements to net-centric concepts. The 853 ELSG will facilitate and participate in the development and testing of CNS box-level prototypes. The 853 ELSG will continue projections of studies and prototyping efforts necessary to ensure AF aircraft are postured to meet current civil standards and future changes to civil standards leading to the concept of free flight. No other program satisfies civil CNS/ATM initiatives. This program is assigned Budget Activity 7, Operational Systems Development, based on RDT&E work to implement and integrate appropriate civil standards to ensure transparent Air Force operations and access to worldwide civil airspace. The 853 ELSG has also started providing Air Force management oversight support within the federal multi-departmental (Departments of Transportation, Defense, Homeland Security, Commerce, White House Office of Science & Technology Policy, FAA & NASA) Next Generation Air Transportation System (NextGen) initiative. The Next Gen initiative, and similar initiatives globally (e.g. Single European Sky) will impact all Air Force platforms and future CNS/ATM Navigation Safety performance requirements in both civil and military environments. 853 ELSG will develop and coordinate CNS/ATM architectures with the FAA and other regulatory agencies to allow unrestricted access for Unmanned Aerial Systems (UAS) into global civil airspace. Furthermore, they will identify UAS equipage roadmaps, facilitate technology development and advocate policy changes to allow unfettered airspace access.

Historical Note: FY06: Global Air Traffic Management (GATM) name changed to Communication, Navigation, Surveillance/Air Traffic Management (CNS/ATM). FY07: 5.7M reprogramming to support the development of the NextGen/DoD Network Enabled Operation (NEO) Spiral 1 Demonstration.

Exhibit R-2, RDT&E Budget Item Justification

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305099F Communication, Navigation, Surveillance/Air Traffic Management (CNS/ATM)

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	6.681	6.275	6.120
(U) Current PBR/President's Budget	7.203	6.258	6.028
(U) Total Adjustments	0.522	-0.017	
(U) Congressional Program Reductions			
Congressional Rescissions	-0.043	-0.017	
Congressional Increases			
Reprogrammings	0.750		
SBIR/STTR Transfer	-0.185		
(U) <u>Significant Program Changes:</u>			
FY08 : Increase via BTR for characterization of national airspace for study/data gathering to support safety case to FAA.			

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

May 2009

BUDGET ACTIVITY <b>07 Operational System Development</b>				PE NUMBER AND TITLE <b>0305099F Communication, Navigation, Surveillance/Air Traffic Management (CNS/ATM)</b>				PROJECT NUMBER AND TITLE <b>4689 Global Access Architecture</b>			
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total	
4689 Global Access Architecture	7.203	6.258	6.028	0.000	0.000	0.000	0.000	0.000	Continuing	TBD	
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0			

(U) **A. Mission Description and Budget Item Justification**

Communication, Navigation, Surveillance/Air Traffic Management (CNS/ATM): the Air Force (AF) program is designed to ensure that all AF acquisitions and modifications conform to appropriate CNS/ATM and Navigation Safety performance requirements to enable access to worldwide civil managed airspace. CNS/ATM and Navigation Warfare (NAVWAR) are major components of the DoD's Global Access, Navigation, and Safety (GANS) management effort. The 853 Electronic Systems Group (ELSG) supports CNS/ATM as the AF's central focal point for identifying, analyzing, and evaluating aviation authority civil operational airspace requirements worldwide. Additionally, they identify, analyze, and evaluate the technical performance requirements of the CNS capabilities and assist the platform program offices in the specific integration of the tailored capabilities required to ensure access to civil airspace. Furthermore, Department of Defense policy states that military platforms conducting peacetime operations will conform to applicable rules to ensure interoperability and transparency within national and international airspace. Also the 853 ELSG supports AF aircraft Single Managers in verifying the system's end-to-end performance for each CNS capability integrated into AF aircraft. Per AFPD 63-13, the 853 ELSG will develop and maintain CNS/ATM performance matrices used to identify specific CNS/ATM requirements for each AF aircraft. The 853 ELSG will provide acquisition and engineering support services through the entire acquisition framework to include development of technical architectures, program management reviews and test planning. Furthermore, the 853 ELSG will develop and award Indefinite Delivery/Indefinite Quantity contracts for centralized procurement and sustainment of CNS/ATM and Nav Safety products and promote commonality of CNS equipment and architectures between aircraft. The 853 ELSG will also participate in the development of Operational Safety, Suitability and Effectiveness assurance and Airworthiness Certification Plans. Dual-use capabilities of avionics to satisfy both civil and military CNS/ATM requirements will be explored as well as enhancements to net-centric concepts. The 853 ELSG will facilitate and participate in the development and testing of CNS box-level prototypes. The 853 ELSG will continue projections of studies and prototyping efforts necessary to ensure AF aircraft are postured to meet current civil standards and future changes to civil standards leading to the concept of free flight. No other program satisfies civil CNS/ATM initiatives. This program is assigned Budget Activity 7, Operational Systems Development, based on RDT&E work to implement and integrate appropriate civil standards to ensure transparent Air Force operations and access to worldwide civil airspace. The 853 ELSG has also started providing Air Force management oversight support within the federal multi-departmental (Departments of Transportation, Defense, Homeland Security, Commerce, White House Office of Science & Technology Policy, FAA & NASA) Next Generation Air Transportation System (NextGen) initiative. The Next Gen initiative, and similar initiatives globally (e.g. Single European Sky) will impact all Air Force platforms and future CNS/ATM Navigation Safety performance requirements in both civil and military environments. 853 ELSG will develop and coordinate CNS/ATM architectures with the FAA and other regulatory agencies to allow unrestricted access for Unmanned Aerial Systems (UAS) into global civil airspace. Furthermore, they will identify UAS equipage roadmaps, facilitate technology development and advocate policy changes to allow unfettered airspace access.

Historical Note: FY06: Global Air Traffic Management (GATM) name changed to Communication, Navigation, Surveillance/Air Traffic Management (CNS/ATM). FY07: 5.7M reprogramming to support the development of the NextGen/DoD Network Enabled Operation (NEO) Spiral 1 Demonstration.

Exhibit R-2a, RDT&E Project Justification

DATE

May 2009

BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0305099F Communication, Navigation, Surveillance/Air Traffic Management (CNS/ATM)</b>	PROJECT NUMBER AND TITLE <b>4689 Global Access Architecture</b>
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(U) <b>B. Accomplishments/Planned Program (\$ in Millions)</b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Continue operational requirements analysis, demonstration, and evaluation	1.122	1.122	1.084
(U) Continue development of common avionics and technologies	1.709	1.684	1.584
(U) Continue acquisition of ID/IQ aviation equipment	0.840	0.840	0.840
(U) Continue Nav/Safety and GPS/NAVWAR integration and interoperability evaluations	0.506	0.506	0.506
(U) Continue system architecture definitions, development, and certification	2.276	2.106	2.014
(U) Continue on going data gathering at Beale AFB, CA to support safety case to the FAA	0.750	0.000	0.000
(U) Total Cost	7.203	6.258	6.028

(U) <b>C. Other Program Funding Summary (\$ in Millions)</b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to Complete</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>

(U) The methodology used to attain CNS/ATM capabilities as required by the MAJCOMs for each platform varies widely - the estimating and tracking of these costs varies even more from program to program. Funding summary information can only be provided by analyzing the specific platform's budget/PE. Please refer to each particular PE affected by CNS/ATM for funding data.

(U) **D. Acquisition Strategy**  
 CNS/ATM acquisition strategy enables the 853 ELSG to guide CNS/ATM and Nav Safety equipment procurements for AF aircraft Single Managers. The 853 ELSG will ensure standardization and support airworthiness certification of AF platforms/systems that operate in the national and global air traffic environments. The Group will collaborate on performance assessment efforts, provide technical expertise and interface with appropriate product/support centers, battle labs, and Department of Defense research and development facilities in the execution of assigned tasks. Program Research and Development Agreements (PDRAs), Cooperative Research and Development Agreements (CDRAs), and Indefinite Delivery/Indefinite Quantity (ID/IQ) contracts will be competitively awarded.

UNCLASSIFIED

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0305099F Communication, Navigation, Surveillance/Air Traffic Management (CNS/ATM)</b>	<b>PROJECT NUMBER AND TITLE</b> <b>4689 Global Access Architecture</b>
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<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
<u>(U) Product Development</u>												
MIT	FFP		7.143	1.070	Jul-08	0.592	Jul-09	0.592	Dec-09	Continuing	TBD	
Honeywell	FFP		2.745							Continuing	TBD	
Allied Signal	FFP		1.975							0.000	1.975	
Rockwell Collins	FFP		1.504							Continuing	TBD	
MITRE Corporation	Cost		20.136	3.134	Oct-07	3.010	Jan-09	3.010	Oct-09	Continuing	TBD	
Horizons Technology Inc	FFP		3.974							Continuing	TBD	
TASC	CPFF		0.728							0.000	0.728	
Smiths Industries	FFP		0.194							Continuing	TBD	
SAIC	T&M		0.530							0.000	0.530	
ARINC Inc	FFP		0.946			0.024	Mar-09			Continuing	TBD	
Lockheed Martin	CPAF		0.159							0.000	0.159	
Bremmer Associates	FFP		0.729							0.000	0.729	
Northrop Grumman	CPAF		2.499							0.000	2.499	
SCS	T&M		2.370	0.200	May-07	0.063	Mar-09	0.063	May-09	Continuing	TBD	
Federal Tech Services	FFP		0.300							0.000	0.300	
DISA/DIT	FFP					0.073	Nov-08	0.073	Nov-09	Continuing	TBD	
ACS Defense	FFP		7.515	1.376	May-07						8.891	
A&AS Support	T&M					1.230	Dec-08	1.430	Dec-09		2.660	
Boeing	FFP										0.000	
WBB	FFP										0.000	
Various	various		4.782	0.890						Continuing	TBD	
Subtotal Product Development			58.229	6.670		4.992		5.168		Continuing	TBD	0.000
Remarks:												
<u>(U) Support</u>												
MITRE Corporation			1.369							Continuing	TBD	
Various	Various		2.587	0.533		1.266		0.860	Nov-09	Continuing	TBD	
Subtotal Support			3.956	0.533		1.266		0.860		Continuing	TBD	0.000
Remarks:												
<u>(U) Test &amp; Evaluation</u>												
412th FLTS (Edwards AFB)			0.111							Continuing	TBD	
Subtotal Test & Evaluation			0.111	0.000		0.000		0.000		Continuing	TBD	0.000
Remarks:												
<u>(U) Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												

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Project 4689

Exhibit R-3 (PE 0305099F)

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY

**07 Operational System Development**

PE NUMBER AND TITLE

**0305099F Communication,  
Navigation, Surveillance/Air Traffic  
Management (CNS/ATM)**

PROJECT NUMBER AND TITLE

**4689 Global Access Architecture**

(U) Total Cost	62.296	7.203	6.258	6.028	Continuing	TBD	0.000
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Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY  
07 Operational System Development

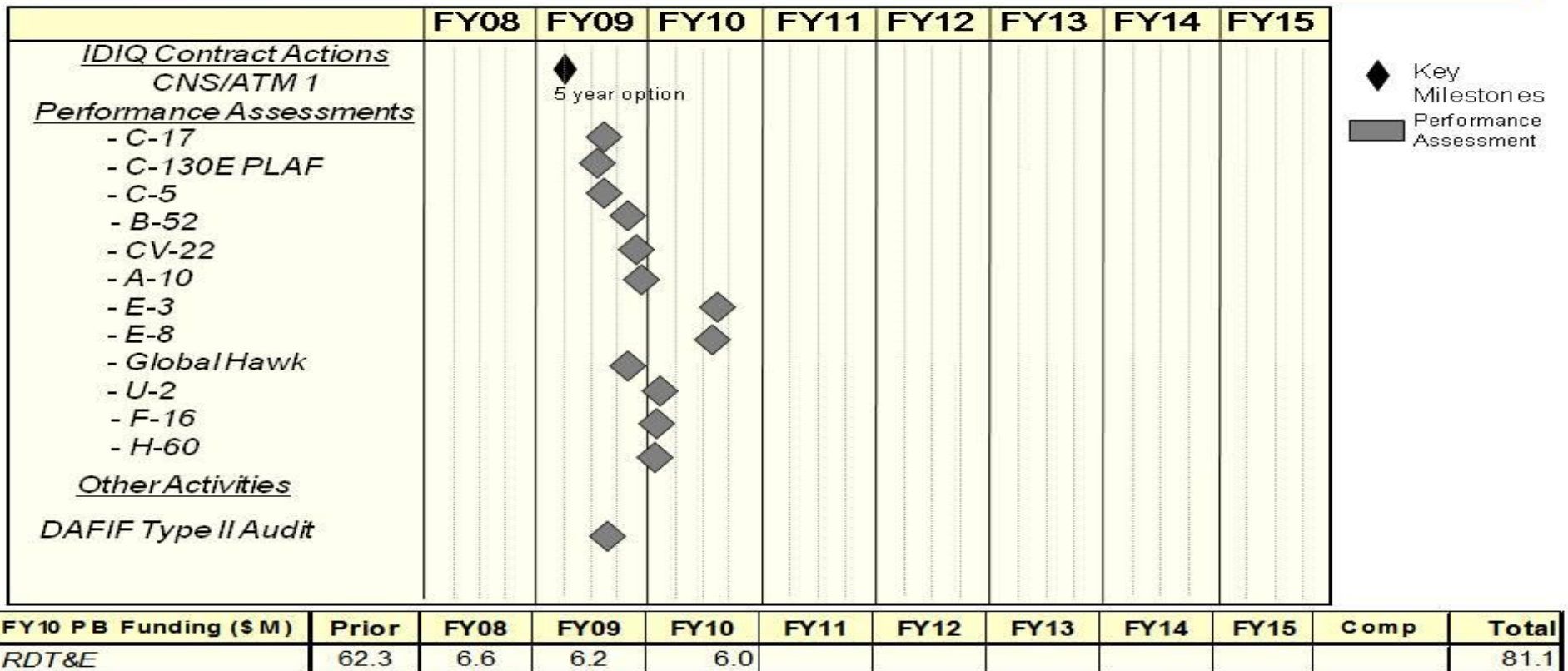
PE NUMBER AND TITLE  
0305099F Communication,  
Navigation, Surveillance/Air Traffic  
Management (CNS/ATM)

PROJECT NUMBER AND TITLE  
4689 Global Access Architecture



U.S. AIR FORCE

# CNS/ATM Schedule



◆ Key Milestones  
■ Performance Assessment

*Integrity - Service - Excellence*

<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0305099F Communication, Navigation, Surveillance/Air Traffic Management (CNS/ATM)</b>	<b>PROJECT NUMBER AND TITLE</b> <b>4689 Global Access Architecture</b>
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<b>(U) <u>Schedule Profile</u></b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) System Architecture Definitions	1-4Q	1-4Q	1-4Q
(U) Operational Requirements Analysis	1-4Q	1-4Q	1-4Q
(U) Development of common avionics and technologies	1-4Q	1-4Q	1-4Q
(U) Acquisition of ID/IQ equipment	1-4Q	1-4Q	1-4Q
(U) GPS/NAVWAR Integration Activities	1-4Q	1-4Q	1-4Q



**UNCLASSIFIED**

PE NUMBER: 0305103F  
 PE TITLE: Cyber Security Initiative

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0305103F Cyber Security Initiative</b>
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.000	2.078	2.065	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1931 TECH SURVEIL COUNTER MEAS EQPT	0.000	2.078	2.065	0.000	0.000	0.000	0.000	0.000	0.000	0.000

**(U) A. Mission Description and Budget Item Justification**

The DoD Cyber Crime Center (DC3) was created as a DoD center of excellence to efficiently organize, equip, train, and employ scarce resources to more effectively address the proliferation of computer crimes affecting the DoD. DC3 has a digital forensics laboratory, training program, institute, and National Cyber Investigative Joint Task Force Analytical Group.

To enable its operations, through the Defense Cyber Crime Institute (DCCI), DC3 will remain on the leading edge of computer technologies and techniques through research, development, testing and evaluation applied to digital evidence processing and computer forensic analysis; and by conducting liaison and by partnering with governmental, university, and private industry computer security officials.

DC3 will develop imaging tools, steganalysis and stegextraction tools, and password over-ride tools. These software tools will enable DC3 to increase the probability of data recovery that would otherwise remain undetected.

The Intrusions/Intruders Signature Program (IISP) provides for the R&D of products and technologies that detect trace and profile hostile cyber adversaries. This capability provides network monitoring and the framework for sharing and automating reverse engineering techniques.

Computer Incident Batch Oriented Recursive Examination (CIBORE) is used to aid the counterintelligence and law enforcement communities to respond to computer intrusions. It is also a data reduction tool that takes a large volume of data, identifies the known "good" and "bad" files and eliminates them from consideration, leaving several GBs of files as candidate malicious code files.

This program is categorized in Budget Activity (BA) 7 because it supports the development efforts of operational systems.

Exhibit R-2, RDT&E Budget Item Justification

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305103F Cyber Security Initiative

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	0.000	2.083	2.080
(U) Current PBR/President's Budget	0.000	2.078	2.065
(U) Total Adjustments	0.000	-0.005	
(U) Congressional Program Reductions		-0.005	
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer			
(U) <u>Significant Program Changes:</u>			

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> 07 Operational System Development	<b>PE NUMBER AND TITLE</b> 0305103F Cyber Security Initiative	<b>PROJECT NUMBER AND TITLE</b> 1931 TECH SURVEIL COUNTER MEAS EQPT
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
1931 TECH SURVEIL COUNTER MEAS EQPT	0.000	2.078	2.065	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

The DoD Cyber Crime Center (DC3) was created as a DoD center of excellence to efficiently organize, equip, train, and employ scarce resources to more effectively address the proliferation of computer crimes affecting the DoD. DC3 has a digital forensics laboratory, training program, institute, and National Cyber Investigative Joint Task Force Analytical Group.

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Computer Incident Batch Oriented Recursive Examination (CIBORE) is used to aid the counterintelligence and law enforcement communities to respond to computer intrusions. It is also a data reduction tool that takes a large volume of data, identifies the known “good” and “bad” files and eliminates them from consideration, leaving several GBs of files as candidate malicious code files.

This program is categorized in Budget Activity (BA) 7 because it supports the development efforts of operational systems.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Develop and validate tech surveillance tools		2.078	2.065
(U) Total Cost	0.000	2.078	2.065

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to Complete</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>		
(U) O&M (0305103)	14.300	15.000	15.200	15.700	116.000	16.500	16.000	17.000	Continuing	TBD

Exhibit R-2a, RDT&E Project Justification

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305103F Cyber Security Initiative

PROJECT NUMBER AND TITLE

1931 TECH SURVEIL COUNTER  
MEAS EQPT

(U) D. Acquisition Strategy

All contracts will be awarded based on full and open competition.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE				
<b>07 Operational System Development</b>				<b>0305103F Cyber Security Initiative</b>				<b>1931 TECH SURVEIL COUNTER MEAS EQPT</b>				
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
General Dynamics	FFP	Lithicum, Maryland				2.078	Dec-09	2.065	Dec-10		4.143	
Subtotal Product Development			0.000	0.000		2.078		2.065		0.000	4.143	0.000
Remarks:												
(U) <u>Support</u>												
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			0.000	0.000		2.078		2.065		0.000	4.143	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

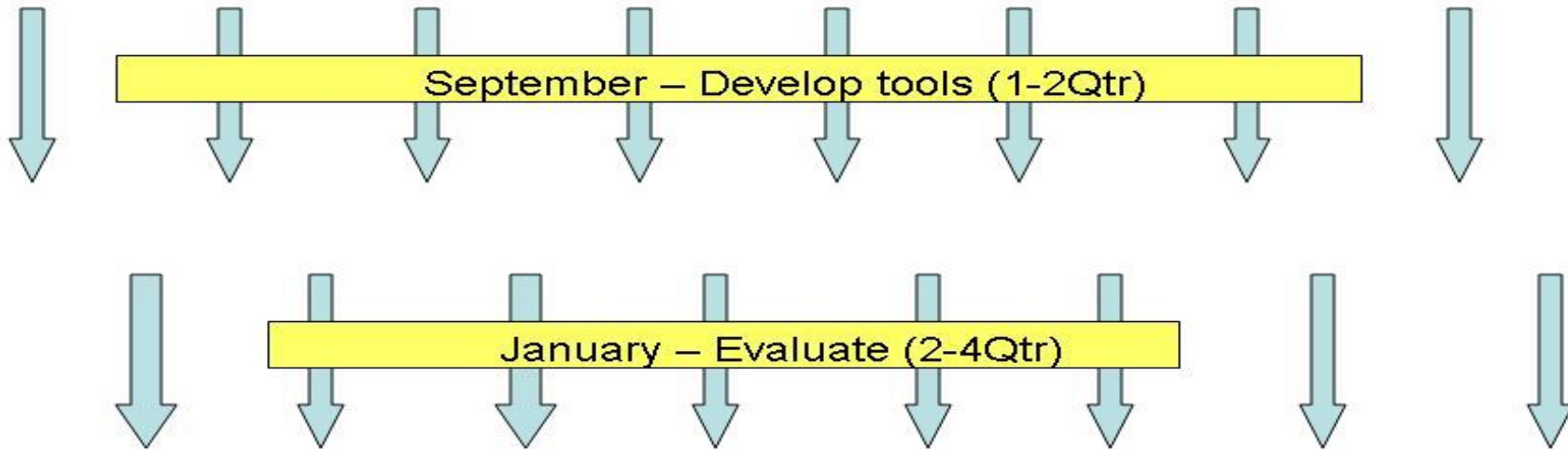
BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0305103F Cyber Security Initiative

PROJECT NUMBER AND TITLE  
1931 TECH SURVEIL COUNTER  
MEAS EQPT

# Cyber Security Initiative

FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY15
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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0305103F Cyber Security Initiative</b>	<b>PROJECT NUMBER AND TITLE</b> <b>1931 TECH SURVEIL COUNTER MEAS EQPT</b>
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	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) <b><u>Schedule Profile</u></b>			
(U) Develop software tools		1-2Q	1-2Q
(U) Evaluate software using digital evidence processing and computer forensic analysis.		2-4Q	2-4Q

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**UNCLASSIFIED**

PE NUMBER: 0305110F  
 PE TITLE: Satellite Control Network

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>									<b>DATE</b> <b>May 2009</b>	
<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>					<b>PE NUMBER AND TITLE</b> <b>0305110F Satellite Control Network</b>					
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	23.530	16.547	20.991	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
3276 Satellite Control Network	23.530	16.547	20.991	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

**(U) A. Mission Description and Budget Item Justification**

The Air Force Satellite Control Network (AFSCN) mission is to command and control space systems and to distribute space system information in support of operational DoD missions, National Security, RDT&E programs, and other designated users. Air Force Space Command (AFSPC) performs operations, maintenance, modernization, and sustainment of the system to provide operational capabilities validated by a Joint Staff Capstone Requirements Document and a Headquarters USAF-approved Operational Requirements Document (ORD). This program element contains funds for the development and acquisition of this integrated national satellite telemetry, tracking, commanding, and data relay capability to meet the requirements of the growing inventory of operational and developmental DoD, National, Civil, and Allied satellite systems.

The AFSCN is a global infrastructure of control centers, Remote Tracking Stations (RTSs), and communications links that provides unique capability for DoD to deploy and operate its satellites. AFSCN provides the highly reliable command and control, communications, and range systems required to support the nation's surveillance, navigation, communications, warning, and weather satellite operations. The AFSCN is the DoD's common user network that provides satellite state-of-health, telemetry, tracking, and commanding (TT&C) for the following operational and future satellite systems: Defense Meteorological Satellite Program (DMSP), Global Positioning System (GPS), Defense Satellite Communications System (DSCS), Defense Support Program (DSP), Space Based Infrared System (SBIRS), Space-Based Space Surveillance (SBSS), Space Tracking and Surveillance System (STSS), Fleet Satellite (FLEETSAT), Military Strategic and Tactical Relay Satellite (MILSTAR), the Navy's Ultra High Frequency Follow-On (UHF F/O), Mobile User Objective System (MUOS), Advanced EHF (AEHF), Wideband Global SATCOM (WGS), Transformational Communications Satellites (TSAT), Skynet, NATO III/IV, and classified programs. Support to NASA and National Oceanic and Atmospheric Administration (NOAA) satellites is provided on an "as required" basis. In addition, the AFSCN provides launch and early orbit tracking operations in support of all major US launches and provides satellite end-of-life disposal operations. It is the world's only global satellite control network equipped with high-power capability necessary for satellite rescue and anomaly resolution operations.

AFSCN Improvement and Modernization (I&M) is an ongoing program of replacements and upgrades which will meet AFSPC operational requirements to replace non-standard, unsupportable equipment with more reliable, maintainable, interoperable, and standardized hardware and software. This new equipment will enable AFSPC satellite operations to be performed with fewer, less skilled personnel and will reduce hardware/software maintenance costs. The principal efforts within this program are currently focused on Range Upgrades and Network Operations Upgrades.

RANGE UPGRADES: This effort will upgrade the current RTSs. Several integrated efforts, which are now grouped into the RTS Block Change (RBC) effort, will standardize, automate and make interoperable the remote tracking stations through the replacement of outdated government unique equipment with commercial off-the-shelf technology in order to reduce failures, correct operational deficiencies, and reduce operating and sustainment costs. Additionally, interoperability efforts to address standards and protocols and external user connectivity are included in this segment.

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

May 2009

BUDGET ACTIVITY

**07 Operational System Development**

PE NUMBER AND TITLE

**0305110F Satellite Control Network**

NETWORK OPERATIONS UPGRADES: These critical upgrades improve AFSCN resource management capabilities.

This effort is in Budget Activity 7, Operational System Development, because it supports a fielded system.

**(U) B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	26.898	16.758	19.026
(U) Current PBR/President's Budget	23.530	16.547	20.991
(U) Total Adjustments	-3.368	-0.211	
(U) Congressional Program Reductions		-0.166	
Congressional Rescissions		-0.045	
Congressional Increases			
Reprogrammings	-2.848		
SBIR/STTR Transfer	-0.520		

**(U) Significant Program Changes:**

FY08 below threshold reprogrammings (-\$2.848M) to support higher DoD priorities; FY10 reduction for higher DoD priorities (-\$2.035M) and increase (+\$4.0M) to support development of dual frequency band uplink capability in RBC.

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>					PE NUMBER AND TITLE <b>0305110F Satellite Control Network</b>			PROJECT NUMBER AND TITLE <b>3276 Satellite Control Network</b>		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
3276 Satellite Control Network	23.530	16.547	20.991	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

The Air Force Satellite Control Network (AFSCN) mission is to command and control space systems and to distribute space system information in support of operational DoD missions, National Security, RDT&E programs, and other designated users. Air Force Space Command (AFSPC) performs operations, maintenance, modernization, and sustainment of the system to provide operational capabilities validated by a Joint Staff Capstone Requirements Document and a Headquarters USAF-approved Operational Requirements Document (ORD). This program element contains funds for the development and acquisition of this integrated national satellite telemetry, tracking, commanding, and data relay capability to meet the requirements of the growing inventory of operational and developmental DoD, National, Civil, and Allied satellite systems.

The AFSCN is a global infrastructure of control centers, Remote Tracking Stations (RTSs), and communications links that provides unique capability for DoD to deploy and operate its satellites. AFSCN provides the highly reliable command and control, communications, and range systems required to support the nation's surveillance, navigation, communications, warning, and weather satellite operations. The AFSCN is the DoD's common user network that provides satellite state-of-health, telemetry, tracking, and commanding (TT&C) for the following operational and future satellite systems: Defense Meteorological Satellite Program (DMSP), Global Positioning System (GPS), Defense Satellite Communications System (DSCS), Defense Support Program (DSP), Space Based Infrared System (SBIRS), Space-Based Space Surveillance (SBSS), Space Tracking and Surveillance System (STSS), Fleet Satellite (FLEETSAT), Military Strategic and Tactical Relay Satellite (MILSTAR), the Navy's Ultra High Frequency Follow-On (UHF F/O), Mobile User Objective System (MUOS), Advanced EHF (AEHF), Wideband Global SATCOM (WGS), Transformational Communications Satellites (TSAT), Skynet, NATO III/IV, and classified programs. Support to NASA and National Oceanic and Atmospheric Administration (NOAA) satellites is provided on an "as required" basis. In addition, the AFSCN provides launch and early orbit tracking operations in support of all major US launches and provides satellite end-of-life disposal operations. It is the world's only global satellite control network equipped with high-power capability necessary for satellite rescue and anomaly resolution operations.

AFSCN Improvement and Modernization (I&M) is an ongoing program of replacements and upgrades which will meet AFSPC operational requirements to replace non-standard, unsupportable equipment with more reliable, maintainable, interoperable, and standardized hardware and software. This new equipment will enable AFSPC satellite operations to be performed with fewer, less skilled personnel and will reduce hardware/software maintenance costs. The principal efforts within this program are currently focused on Range Upgrades and Network Operations Upgrades.

**RANGE UPGRADES:** This effort will upgrade the current RTSs. Several integrated efforts, which are now grouped into the RTS Block Change (RBC) effort, will standardize, automate and make interoperable the remote tracking stations through the replacement of outdated government unique equipment with commercial off-the-shelf technology in order to reduce failures, correct operational deficiencies, and reduce operating and sustainment costs. Additionally, interoperability efforts to address standards and protocols and external user connectivity are included in this segment.

Exhibit R-2a, RDT&E Project Justification

DATE

May 2009

BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0305110F Satellite Control Network</b>	PROJECT NUMBER AND TITLE <b>3276 Satellite Control Network</b>
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NETWORK OPERATIONS UPGRADES: These critical upgrades improve AFSCN resource management capabilities.

This effort is in Budget Activity 7, Operational System Development, because it supports a fielded system.

(U) <b>B. Accomplishments/Planned Program (\$ in Millions)</b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Range Upgrades: continue upgrades to include development of interoperability and RTS Block Change efforts. Continue high power amplifier development to include S-band capability. Continue predeployment system engineering and network integration.	17.149	3.568	17.711
(U) Network Operations Upgrades: no network operations development efforts are budgeted in FY10.	0.049	9.825	0.000
(U) Program support, to include System Program Office operations, SETA, FFRDC and Systems Engineering and Integration	6.332	3.154	3.280
(U) Total Cost	23.530	16.547	20.991

(U) **C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to Complete</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>		
(U) OPAF, Electronics & Telecom Equipment (BA 03, PE 0305110F, P-64)	48.258	64.966	58.865							

(U) **D. Acquisition Strategy**

The AF uses the competitively awarded Satellite Control Network Contract (SCNC), managed by Space and Missile System Center, to modernize and sustain the AFSCN on a non-interference basis as it continues to support operational, RDT&E, and other designated users. The AF has also awarded sole source contracts to Honeywell and intends to award additional contracts in FY10 to continue to modernize the AFSCN.

UNCLASSIFIED

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>07 Operational System Development</b>				<b>0305110F Satellite Control Network</b>					<b>3276 Satellite Control Network</b>			
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> Satellite Control Network Contract	C/CPAF	Honeywell, Colorado Springs, CO	95.699	17.198	Dec-07	13.393	Dec-08	17.711	Dec-09	Continuing	TBD	TBD
Subtotal Product Development			95.699	17.198		13.393		17.711		Continuing	TBD	TBD
Remarks:												
(U) <u>Support</u> Program Support (FFRDC, SETA, SPO ops)	various	various	73.903	6.332	Dec-07	3.154	Dec-08	3.280	Dec-09	Continuing	TBD	TBD
Subtotal Support			73.903	6.332		3.154		3.280		Continuing	TBD	TBD
Remarks:												
(U) Total Cost			169.602	23.530		16.547		20.991		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

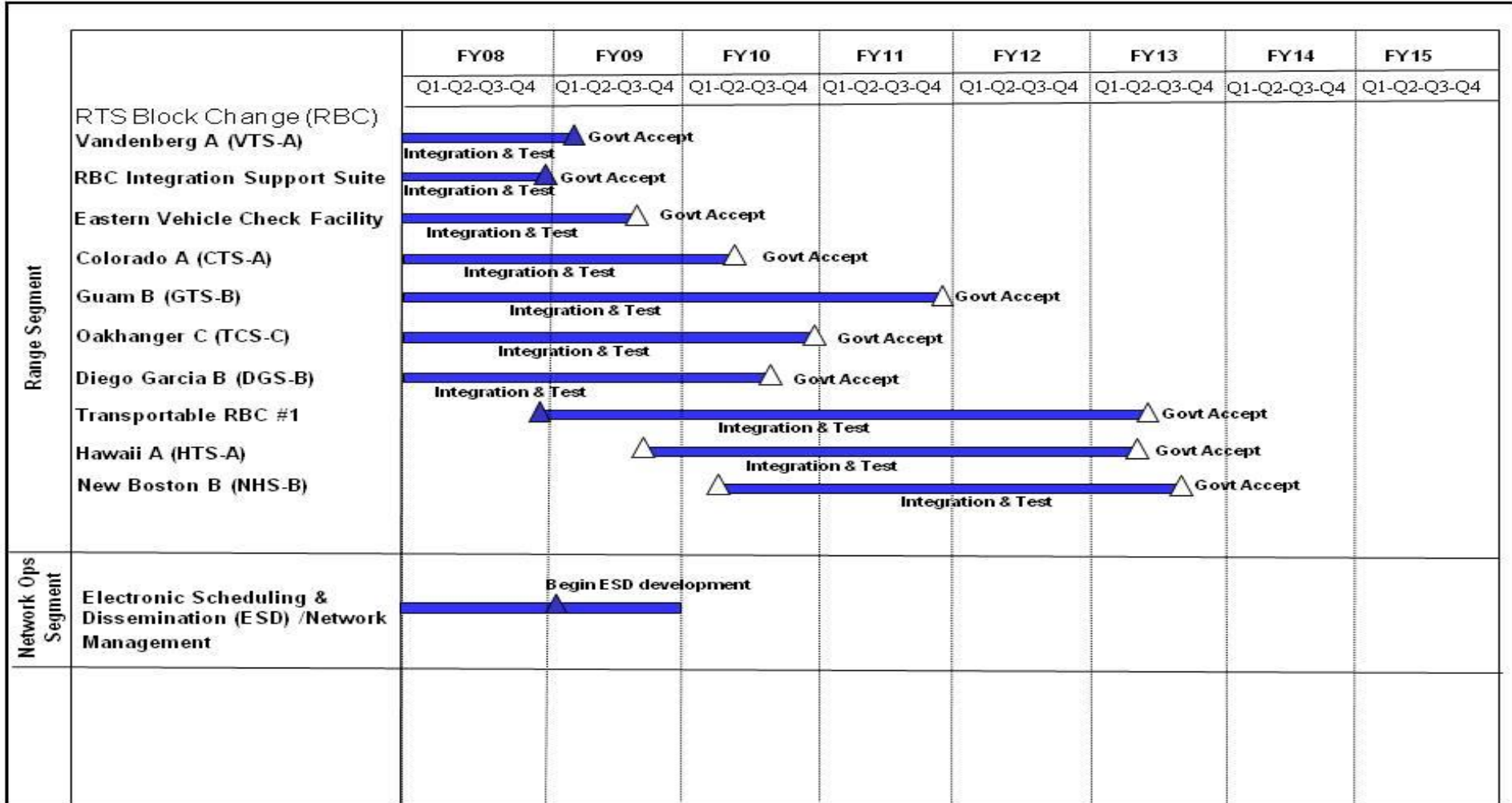
DATE

May 2009

BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0305110F Satellite Control Network

PROJECT NUMBER AND TITLE  
3276 Satellite Control Network



Acronyms: RTS – Remote Tracking Station

<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>May 2009</b>
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BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0305110F Satellite Control Network</b>	PROJECT NUMBER AND TITLE <b>3276 Satellite Control Network</b>
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	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) <b>Schedule Profile</b>			
(U) RANGE UPGRADES (RBC- Remote Tracking Station (RTS) Block Change)			
(U) - Vandenberg-A RBC Gov't acceptance		1Q	
(U) - Begin Transportable RBC #1	4Q		
(U) - RBC Integration Support Suite Gov't acceptance	4Q		
(U) - Eastern Vehicle Check Facility Gov't acceptance		3Q	
(U) - Begin Hawaii-A RBC		3Q	
(U) - Colorado RBC Gov't acceptance			2Q
(U) - Begin New Boston-B RBC			2Q
(U) - Diego Garcia-B Gov't acceptance			3Q
(U) - Oakhanger-C RBC Gov't acceptance			4Q
(U) - Guam-B RBC Gov't acceptance			
(U) NETWORK OPERATIONS UPGRADES			
(U) - Electronic Scheduling & Dissemination upgrade development		1Q	

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**UNCLASSIFIED**

PE NUMBER: 0305111F  
 PE TITLE: WEATHER SERVICE

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	<b>DATE</b> <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0305111F WEATHER SERVICE</b>
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	39.830	47.219	33.531	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
2738 Weather Service	39.830	47.219	33.531	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

**(U) A. Mission Description and Budget Item Justification**

This budget activity funds operational development necessary to acquire, modify, and sustain segments of the Air Force Weather Weapon System (AFWWS). Activities also include studies and analysis to support both current program planning and execution and future program planning. The AFWWS provides timely, accurate, consistent and relevant space and terrestrial weather information for global battlespace situational awareness. The AFWWS supports worldwide operations of Air Force and Army warfighters, Special Operation Forces (SOF), and other government agencies with weather observing and forecasting capabilities at in-garrison and deployed locations as well as centralized, reach-back capabilities. Air Force Weather (AFW) programs align under the five capability areas of Weather Data Collection (WDC), Weather Data Analysis (WDA), Weather Forecasting, Product Tailoring/Warfighter Applications (PT/WA), and Weather Dissemination (relies on Commercial-off-the-Shelf products and so does not use RDT&E funding). Through this alignment, AFW ensures an integrated and systems-oriented approach to program management decisions.

WDC provides automated terrestrial and space environmental sensing capabilities at fixed and deployed locations worldwide. WDA provides a net-centric infrastructure that assimilates worldwide sources of space and terrestrial weather data and produces decision-quality information for warfighters. Weather Forecasting provides advanced scientific numerical weather prediction capabilities for automated, high resolution forecast products for mission planning, rehearsal, and execution. Additionally, WDA and Forecasting capabilities will be expanded to integrate and exploit data from a new generation of environmental sensing satellites. PT/WA provides timely, local and regional target-scale weather information to operational commanders for a given Area of Responsibility, and at tactical levels, provides front-line weather information to warfighters in support of combat operations. PT/WA supports the 'train as you fight' concept by assuring fixed and deployable systems have a similar look and feel.

In FY08, the Electronic Systems Center began fielding of Joint Environmental Toolkit (JET), Increment 1. JET will help AFW store information for use in Air and Space Operations Centers, integrate weather information with Army decision processes, and integrate and exploit weather at strategic, operational and tactical levels. In addition, the Space and Missile Systems Center developed software for the Joint Meteorology and Oceanography (METOC) Space Environment and Solar Segment (JMSESS) database providing initial net-centric capability for space weather and command and control operators.

This effort is in Budget Activity 7, Operational System Development, because it supports operational software development and system tests associated with the upgrade and replacement of currently operational systems, systems already in production, and systems with approved production funds in the DoD budget.

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305111F WEATHER SERVICE

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	40.959	47.347	42.906
(U) Current PBR/President's Budget	39.830	47.219	33.531
(U) Total Adjustments	-1.129	-0.128	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.128	
Congressional Increases	1.600		
Reprogrammings			
SBIR/STTR Transfer	-2.729		

(U) **Significant Program Changes:**

In FY08: Congressional plus-up of \$800K for Operational Risk Management (ORM) visualization and integration and \$800K for airborne meteorological data reporting modernization via Tropospheric Airborne Meteorological Data Reporting (TAMDAR) system integration and performance evaluation on Unmanned Aerial Systems (UAS).

In FY10: funding decreases from FY09 due to higher Air Force priorities.

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>					PE NUMBER AND TITLE <b>0305111F WEATHER SERVICE</b>			PROJECT NUMBER AND TITLE <b>2738 Weather Service</b>		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
2738 Weather Service	39.830	47.219	33.531	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

This budget activity funds operational development necessary to acquire, modify, and sustain segments of the Air Force Weather Weapon System (AFWWS). Activities also include studies and analysis to support both current program planning and execution and future program planning. The AFWWS provides timely, accurate, consistent and relevant space and terrestrial weather information for global battlespace situational awareness. The AFWWS supports worldwide operations of Air Force and Army warfighters, Special Operation Forces (SOF), and other government agencies with weather observing and forecasting capabilities at in-garrison and deployed locations as well as centralized, reach-back capabilities. Air Force Weather (AFW) programs align under the five capability areas of Weather Data Collection (WDC), Weather Data Analysis (WDA), Weather Forecasting, Product Tailoring/Warfighter Applications (PT/WA), and Weather Dissemination (relies on Commercial-off-the-Shelf products and so does not use RDT&E funding). Through this alignment, AFW ensures an integrated and systems-oriented approach to program management decisions.

WDC provides automated terrestrial and space environmental sensing capabilities at fixed and deployed locations worldwide. WDA provides a net-centric infrastructure that assimilates worldwide sources of space and terrestrial weather data and produces decision-quality information for warfighters. Weather Forecasting provides advanced scientific numerical weather prediction capabilities for automated, high resolution forecast products for mission planning, rehearsal, and execution. Additionally, WDA and Forecasting capabilities will be expanded to integrate and exploit data from a new generation of environmental sensing satellites. PT/WA provides timely, local and regional target-scale weather information to operational commanders for a given Area of Responsibility, and at tactical levels, provides front-line weather information to warfighters in support of combat operations. PT/WA supports the 'train as you fight' concept by assuring fixed and deployable systems have a similar look and feel.

In FY08, the Electronic Systems Center began fielding of Joint Environmental Toolkit (JET), Increment 1. JET will help AFW store information for use in Air and Space Operations Centers, integrate weather information with Army decision processes, and integrate and exploit weather at strategic, operational and tactical levels. In addition, the Space and Missile Systems Center developed software for the Joint Meteorology and Oceanography (METOC) Space Environment and Solar Segment (JMSESS) database providing initial net-centric capability for space weather and command and control operators.

This effort is in Budget Activity 7, Operational System Development, because it supports operational software development and system tests associated with the upgrade and replacement of currently operational systems, systems already in production, and systems with approved production funds in the DoD budget.

<b>(U) B. Accomplishments/Planned Program (\$ in Millions)</b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Accomplishments/Planned Program			
(U) WDC: Includes but is not limited to AF participation with National Weather Service and Federal Aviation Administration in Product Improvement Plans for automated weather sensors and the Next Generation Weather Radar.	0.338	0.338	0.670

Exhibit R-2a, RDT&E Project Justification

DATE

May 2009

BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0305111F WEATHER SERVICE</b>	PROJECT NUMBER AND TITLE <b>2738 Weather Service</b>
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(U) <b>B. Accomplishments/Planned Program (\$ in Millions)</b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) WDA: Continues incremental software development and integration of enhanced analysis capabilities including processing of data from a new generation of environmental sensing satellites.	9.863	10.740	8.026
(U) Forecasting: Continues integration of advanced terrestrial and space weather forecast capabilities including exploitation of a new generation of environmental sensing satellites.	11.890	15.778	13.126
(U) PT/WA: Continues software development and integration of regional and tactical weather systems and integration with warfighter C4I systems.	16.139	20.363	11.709
(U) Tropospheric Airborne Meteorological Data Reporting develops airborne weather sensors on Unmanned Aerial Vehicles (UAVs) and Operational Risk Management develops visualization and integration tools.	1.600		
(U) Total Cost	39.830	47.219	33.531

(U) <b>C. Other Program Funding Summary (\$ in Millions)</b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Other Procurement, AF, Weather Service (PE 0305111F WSC 833070, 838010, and 86190A)	60.640	62.895	39.167						Continuing	TBD
(U) Operations and Maintenance	127.405	145.164	152.458						Continuing	TBD

(U) **D. Acquisition Strategy**  
 AFWWS employs an incremental development strategy with a series of incremental Initial Operational Capabilities (IOCs) and software releases to enable rapid development and fielding of capabilities using full and open competition.

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>07 Operational System Development</b>				<b>0305111F WEATHER SERVICE</b>					<b>2738 Weather Service</b>			
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
Northrop Grumman	C/CPAF	Bellevue, NE	11.308	3.375	Dec-07	4.148	Jan-09	4.345	Jan-10	Continuing	TBD	TBD
Raytheon Technical Services	C/CPFF	Bellevue, NE	14.999	4.374	May-08					Continuing	TBD	TBD
TBD (Weather Data Analysis)	C/TBD	TBD				7.520	Jun-09	4.834	Nov-09	Continuing	TBD	TBD
Raytheon Information & Intelligence Systems	C/CPAF	Bellevue, NE	16.211	11.700	Apr-08	15.774	Nov-08	8.090	Feb-10	Continuing	TBD	TBD
National Center for Atmospheric Research	MIPR	Boulder, CO	9.303	3.711	Mar-08	5.836	Jan-09	4.332	Jan-10	Continuing	TBD	TBD
National Aeronautics & Space Administration	MIPR	Greenbelt, MD	1.875	0.549	Mar-08	2.257	Jan-09	1.251	Jan-10	Continuing	TBD	TBD
University Corporation for Atmospheric Research	MIPR	Boulder, CO		0.772	Mar-08	1.200	Jan-09	0.650	Jan-10	Continuing	TBD	TBD
Various	various	various	21.322	7.619	Oct-07	3.408	Oct-08	3.937	Oct-09	Continuing	TBD	TBD
Subtotal Product Development			75.018	32.100		40.143		27.439		Continuing	TBD	TBD
Remarks:												
(U) <u>Management</u>												
Electronic Systems Center		Hanscom AFB, MA	10.467	7.078	Oct-07	6.796	Oct-08	5.787	Oct-09	Continuing	TBD	TBD
Space & Missile Systems Center		Los Angeles AFB, CA	0.565	0.015	Oct-07	0.020	Oct-08	0.030	Oct-09	Continuing	TBD	TBD
Air Force Research Laboratory		Rome Labs, NY	0.000	0.637	Oct-07					Continuing	TBD	TBD
Air Force Weather Agency		Offutt AFB, NE	0.000	0.000		0.260	Feb-09	0.275	Oct-09	Continuing	TBD	TBD
Subtotal Management			11.032	7.730		7.076		6.092		Continuing	TBD	TBD
Remarks:												
(U) Total Cost			86.050	39.830		47.219		33.531		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

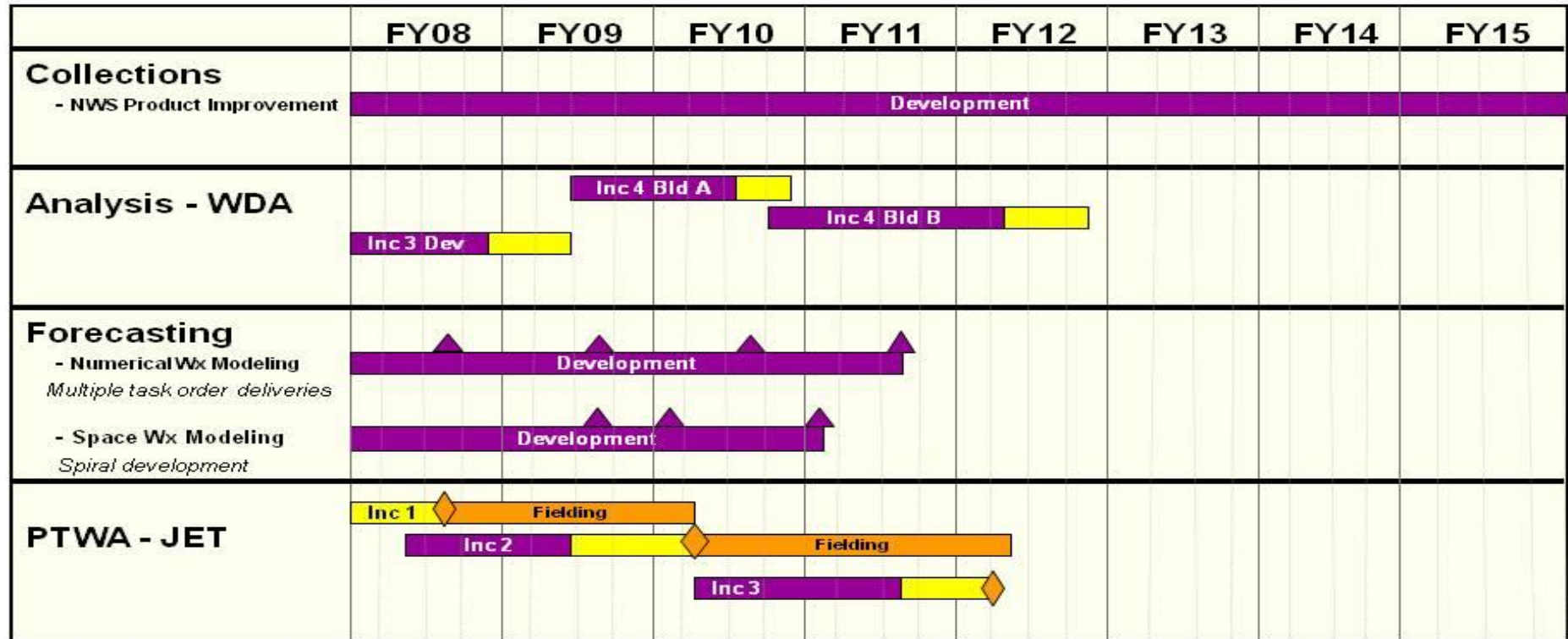
BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0305111F WEATHER SERVICE

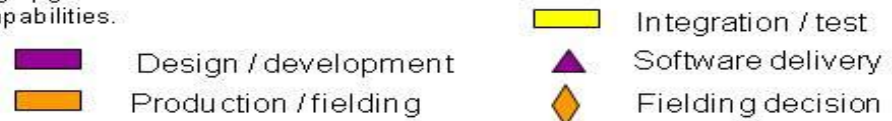
PROJECT NUMBER AND TITLE  
2738 Weather Service

PE 0305111F Weather Service

As of Apr 09



Note: AF Weather Weapon System, aligned with NWS product improvements, Forecasting, and Space Weather Modeling are operational and being upgraded through incremental development activities improving operational capabilities.



**UNCLASSIFIED**

<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0305111F WEATHER SERVICE</b>	<b>PROJECT NUMBER AND TITLE</b> <b>2738 Weather Service</b>
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	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) <b><u>Schedule Profile</u></b>			
(U) WDC NWS Product Improvement Effort (Note 1)	1-4Q	1-4Q	1-4Q
(U) WDA Increment 3 Delivery		2Q	
(U) WDA Increment 4 Build A Delivery			4Q
(U) Forecasting Tasks Complete	3Q	3Q	3Q
(U) PT/WA - JET Increment 1 Initial Operational Capability		1Q	
(U) PT/WA - JET Increment 2 Initial Operational Capability			2Q

Note 1: AF participation with National Weather Service (NWS) and Federal Aviation Administration (FAA) in Product Improvement Plans for automated weather sensors and the Next Generation Weather Radar (NEXRAD).

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**UNCLASSIFIED**

PE NUMBER: 0305114F

PE TITLE: Air Traffic Control/Approach/Landing System (ATCALs)

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	<b>DATE</b> <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0305114F Air Traffic Control/Approach/Landing System (ATCALs)</b>
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	6.395	10.796	9.006	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
3587 Air Traffic Control Systems	6.395	10.796	9.006	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

**(U) A. Mission Description and Budget Item Justification**

This program element funds research, development, and management of new air traffic control surveillance, positioning, and precision approach capabilities. The cornerstone of this effort is the Air Traffic Control and Landing Systems (ATCALs) Modernization initiative which combines organizational realignments, process improvements, and investments in technology to update 20+ year old fixed and deployable ATCALs equipment. The first phase of this initiative includes development of a deployable Instrument Landing System (DILS) and updates to fixed and deployable precision and non-precision approach control equipment such as, but not limited to, Tactical Air Navigation (TACAN), Very High Frequency Omnidirectional Range (VOR), and Air Traffic Control Radios.

The Air Force will be participating with the Federal Aviation Administration (FAA) and other assigned Departments to implement a new and improved capability into the NAS under the Next Generation (NextGen) Air Transportation System initiative. NextGen is a joint effort with the Department of Transportation (DOT), Department of Homeland Security (DHS), Department of Commerce (DOC) and the National Aeronautics and Space Administration (NASA). Near term efforts include initiatives to improve current air traffic and surveillance service, technology identification, operational risk awareness, and movement and access of airspace in both terminal and enroute environments. Additionally, in order to rapidly transition promising ATC technologies, the program element funds design studies, engineering analysis, non-recurring engineering and other efforts associated with integration and modification of ATC related technologies and systems. Finally, the ATCALs program will participate in the development, testing, and implementation of international standards (to include North Atlantic Treaty Organization (NATO) standardization agreements) to ensure joint, Allied, and coalition interoperability.

FY10 funding focuses on implementation of ATCALs Modernization, NextGen near term capabilities, and preparation of requirements and acquisition documents for a deployable RAPCON replacement. ATCALs Modernization includes continuation of DILS development to replace the manpower, maintenance, and airlift intensive mobile precision approach radar. NextGen will focus on technology and infrastructure changes required for the Air Force to be interoperable with FAA and host-nation ATC systems. One component is development of an Automatic Dependent Surveillance-Broadcast (ADS-B) capability which will provide enhanced pilot situational awareness and is being mandated by the FAA and Euro Control. Since the Air Force must provide the same level of air traffic service to the military and flying public, funds are required to conduct interoperability and architecture studies and analyses on a wide range of aviation concepts. Pre-planned product improvements (P3I) complement similar activities associated with other safety of flight and airspace access programs such as Communication, Navigation and Surveillance/Air Traffic Management (CNS/ATM).

This program is in budget activity 7, Operational System Development, because it upgrades currently fielded systems and has associated (OPAF) funding in PE 0305114F.

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305114F Air Traffic Control/Approach/Landing System (ATCALs)

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	8.293	6.867	3.585
(U) Current PBR/President's Budget	6.395	10.796	9.006
(U) Total Adjustments	-1.898	3.929	
(U) Congressional Program Reductions		-0.042	
Congressional Rescissions		-0.029	
Congressional Increases		4.000	
Reprogrammings	-1.667		
SBIR/STTR Transfer	-0.231		

(U) **Significant Program Changes:**

FY08: Reprogrammed to higher AF priorities.

FY09 Congressional add HR2638 24 Sep 08: \$4M for Transportable Transponder Landing System (TTLS).

FY10 funds programmed for Next Generation (NextGen) Air Transportation system development.

FY10 funds programmed for Automatic Dependence Surveillance - Broadcast (ADS-B) development.

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>				PE NUMBER AND TITLE <b>0305114F Air Traffic Control/Approach/Landing System (ATCALs)</b>				PROJECT NUMBER AND TITLE <b>3587 Air Traffic Control Systems</b>			
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total	
3587 Air Traffic Control Systems	6.395	10.796	9.006	0.000	0.000	0.000	0.000	0.000	Continuing	TBD	
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0			

**(U) A. Mission Description and Budget Item Justification**

This program element funds research, development, and management of new air traffic control surveillance, positioning, and precision approach capabilities. The cornerstone of this effort is the Air Traffic Control and Landing Systems (ATCALs) Modernization initiative which combines organizational realignments, process improvements, and investments in technology to update 20+ year old fixed and deployable ATCALs equipment. The first phase of this initiative includes development of a deployable Instrument Landing System (DILS) and updates to fixed and deployable precision and non-precision approach control equipment such as, but not limited to, Tactical Air Navigation (TACAN), Very High Frequency Omnidirectional Range (VOR), and Air Traffic Control Radios.

The Air Force will be participating with the Federal Aviation Administration (FAA) and other assigned Departments to implement a new and improved capability into the NAS under the Next Generation (NextGen) Air Transportation System initiative. NextGen is a joint effort with the Department of Transportation (DOT), Department of Homeland Security (DHS), Department of Commerce (DOC) and the National Aeronautics and Space Administration (NASA). Near term efforts include initiatives to improve current air traffic and surveillance service, technology identification, operational risk awareness, and movement and access of airspace in both terminal and enroute environments. Additionally, in order to rapidly transition promising ATC technologies, the program element funds design studies, engineering analysis, non-recurring engineering and other efforts associated with integration and modification of ATC related technologies and systems. Finally, the ATCALs program will participate in the development, testing, and implementation of international standards (to include North Atlantic Treaty Organization (NATO) standardization agreements) to ensure joint, Allied, and coalition interoperability.

FY10 funding focuses on implementation of ATCALs Modernization, NextGen near term capabilities, and preparation of requirements and acquisition documents for a deployable RAPCON replacement. ATCALs Modernization includes continuation of DILS development to replace the manpower, maintenance, and airlift intensive mobile precision approach radar. NextGen will focus on technology and infrastructure changes required for the Air Force to be interoperable with FAA and host-nation ATC systems. One component is development of an Automatic Dependent Surveillance-Broadcast (ADS-B) capability which will provide enhanced pilot situational awareness and is being mandated by the FAA and Euro Control. Since the Air Force must provide the same level of air traffic service to the military and flying public, funds are required to conduct interoperability and architecture studies and analyses on a wide range of aviation concepts. Pre-planned product improvements (P3I) complement similar activities associated with other safety of flight and airspace access programs such as Communication, Navigation and Surveillance/Air Traffic Management (CNS/ATM).

This program is in budget activity 7, Operational System Development, because it upgrades currently fielded systems and has associated (OPAF) funding in PE 0305114F.

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0305114F Air Traffic Control/Approach/Landing System (ATCALs)</b>	<b>PROJECT NUMBER AND TITLE</b> <b>3587 Air Traffic Control Systems</b>
--	--	--

<b>(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Next Generation Air Transportation System (NextGen)			2.000
(U) Terminal Surveillance and Approach System (TSAS) /Transportable Transponder Landing System (TTLS)	2.899	4.000	
(U) TRACON Quick Connect Panel and Switchgear	0.695		
(U) Requirements & acquisition documentation for deployable RAPCON replacement system	0.432	0.366	1.311
(U) ATCALs Modernization - DILS	2.369	6.430	5.445
(U) Automatic Dependent Surveillance - Broadcast (ADS-B)			0.250
(U) Total Cost	6.395	10.796	9.006

<b>(U) <u>C. Other Program Funding Summary (\$ in Millions)</u></b>										
	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E										
(U) Other APPN										
(U) OPAF - BA 5 (PE 35114F)										
Weapon System Code CO2900		31.781							Continuing	TBD
(U) OPAF - BA 3 (PE 0305114F)										
Weapon System Code 833010	7.730	10.561	22.591	79.043	87.659	81.530	82.881	49.287	Continuing	TBD
(U) OPAF, BA 3, PE 0305114F,										
Weapon System Code 838010	3.214	3.927	7.987	8.626	9.613	9.978	10.012	10.065	Continuing	TBD
(U) OPAF, BA 3, (PE 0305137F,										
Weapon System Code 833020	62.607	47.049	47.670	42.191	48.412	61.107	54.874	55.830	Continuing	TBD
(U) OPAF, BA 5, (PE 0305137F)										
Weapon System Code 86190A Initial Spares	5.461	5.488	5.734	5.786	5.885	5.988	6.123	6.239	Continuing	TBD
(U) OPAF - BA 5 (PE 0305114F)										
Weapon System Code 86190A Initial Spares	0.876	0.884	0.906	0.917	0.931	0.948	0.962	0.979	Continuing	TBD

**(U) D. Acquisition Strategy**  
Award multiple, competitive contract vehicles emphasizing off-the-shelf technology and maximizing the use of non-developmental items (NDIs).

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0305114F Air Traffic Control/Approach/Landing System (ATCALs)</b>	<b>PROJECT NUMBER AND TITLE</b> <b>3587 Air Traffic Control Systems</b>
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<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> Next Generation Air Transportation System (NextGen)	C/T&M	AFMC 641 ELSS, Hanscom AFB MA (PASS - Quantech Services, Bedford, MA; ETASS - Jacobs Engineering, Bedford, MA)						2.000	Jan-10		2.000	
Terminal Surveillance and Approach System (TSAS) /Tactical Transponder Landing System (TTLS)	C/FFP	Adv Nav & Positioning Corp; Hood River, OR	3.824	2.899	Jun-08	4.000	Jun-09			0.000	10.723	6.899
TRACON Quick Connect Panel and Switchgear	ID/IQ	Wells Global, Raleigh Durham, NC		0.695	Aug-08					0.000	0.695	0.695
Requirements & acquisition documentation for deployable RAPCON replacement system	C/T&M	AFMC 641 ELSS, Hanscom AFB MA (PASS - Quantech Services, Bedford, MA; ETASS - Jacobs Engineering, Bedford, MA)		0.432	Mar-08	0.366	Feb-09	1.311	Jan-10	Continuing	TBD	TBD
ATCALs Modernization - DILS	TBD	TBD		2.369	Mar-09	6.430	Aug-09	5.445	Dec-09	0.000	14.244	TBD
Automatic Dependent Surveillance - Broadcast	TBD	TBD						0.250	Jan-10	Continuing	TBD	TBD

R-1 Line Item No. 186

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Exhibit R-3 (PE 0305114F)

Project 3587

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY	PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE			
<b>07 Operational System Development</b>	<b>0305114F Air Traffic Control/Approach/Landing System (ATCAL)</b>				<b>3587 Air Traffic Control Systems</b>			
(ADS-B) Subtotal Product Development	3.824	6.395	10.796	9.006	Continuing	TBD	TBD	TBD
(U) Total Cost	3.824	6.395	10.796	9.006	Continuing	TBD	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

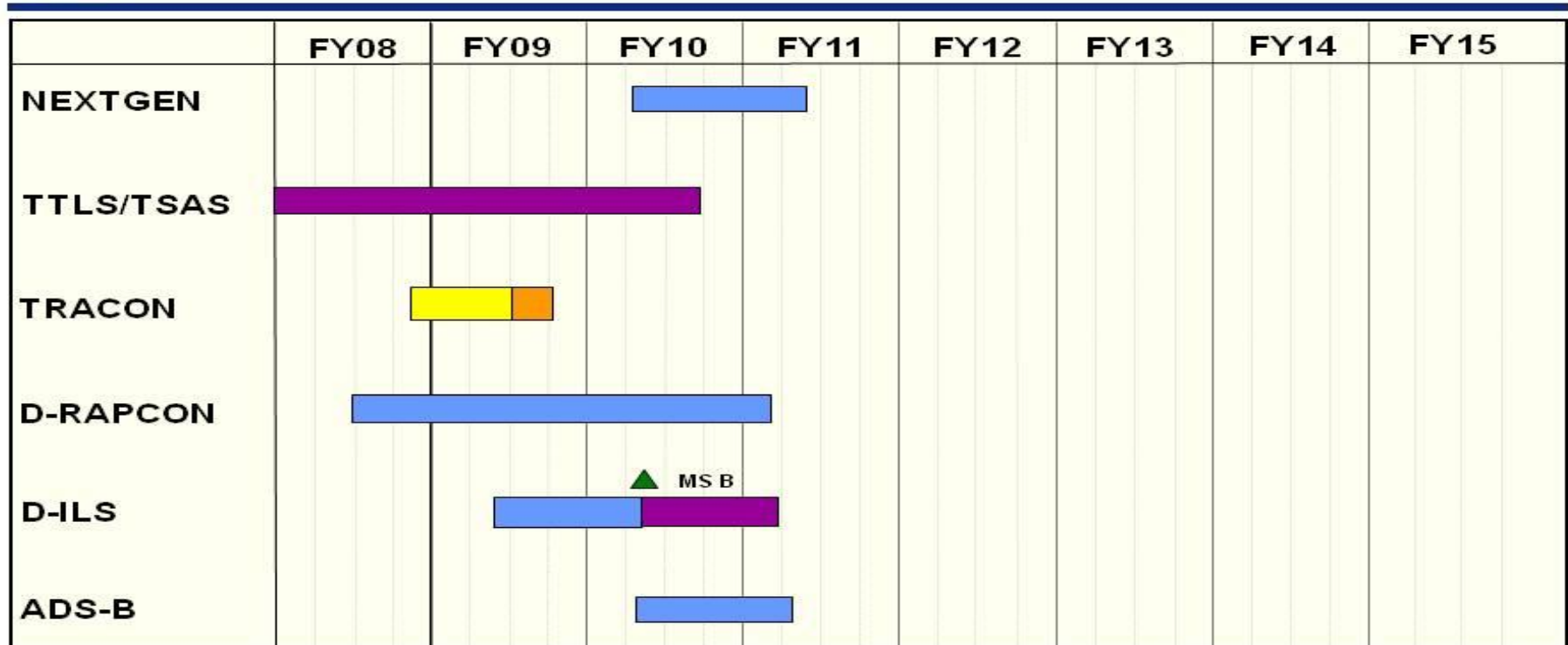
BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0305114F Air Traffic  
Control/Approach/Landing System  
(ATCALs)

PROJECT NUMBER AND TITLE  
3587 Air Traffic Control Systems



# Air Traffic Control Systems



■ Concept activities  
■ Production / fielding

■ Design / development  
■ Pre-Production

■ Integration / test  
▲ ◆ Key events

**PB10 R-Docs**

Depicted by installation/production flow

1

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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0305114F Air Traffic Control/Approach/Landing System (ATCALs)</b>	<b>PROJECT NUMBER AND TITLE</b> <b>3587 Air Traffic Control Systems</b>
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<b>(U) <u>Schedule Profile</u></b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Next Generation Air Transportation System (NextGen) concept activities			2-4Q
(U) Terminal Surveillance and Approach System (TSAS) /Tactical Transponder Landing System (TTLS) integration/test	1-4Q	1-4Q	1-3Q
(U) TRACON Quick Connect Power and Switchgear Acquisition/Installation	4Q	1-3Q	
(U) Develop deployable RAPCON requirements & acquisition documentation, production contract award	2-4Q	1-4Q	1-4Q
(U) ATCALs Modernization - DILS Requirement Documentation Prep, Source Selection & Development/Test		2-4Q	1-4Q
(U) Automatic Dependent Surveillance - Broadcast Development (ADS-B) concept activities			2-4Q



**UNCLASSIFIED**

PE NUMBER: 0305116F  
 PE TITLE: AERIAL TARGETS

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0305116F AERIAL TARGETS</b>
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	5.683	34.683	54.807	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5136 Target Systems Development	5.683	34.683	4.018	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5366 QF-16	0.000	0.000	50.789	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

**(U) A. Mission Description and Budget Item Justification**

Full-scale and subscale targets assure warfighters that weapon systems will perform effectively against real-world enemy fighters and cruise missiles. Aerial targets support adherence to public law Title 10, Section 2366, which requires major systems and munitions programs to conduct survivability and lethality testing before full-rate production. The Aerial Targets program provides drones to satisfy "Live Fire/Lethality" developmental/operational test requirements. Target drones are used to validate operational missile/weapon system effectiveness and fighter operational flight program (OFP) updates. Target drones are also essential for developmental/operational testing for all air-to-air and ground-to-air missiles, and for the F-22A, F-35, F-16, F-15, etc., aircraft. This program element funds development, improvements, and updates of full-scale/subscale aerial targets and target control systems to ensure aerial targets represent enemy threat airborne systems. Specialized target payload subsystems are developed for requirements such as: missile scoring, electronic attack and infrared (IR) countermeasures, radar and IR signature augmentation, and chaff and flare dispensing systems.

This program is in budget activity 7 - RDT&E Operational System Development because it provides aerial targets, target payloads, and target control systems in support of operational and developmental testing.

**(U) B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	7.329	34.777	51.753
(U) Current PBR/President's Budget	5.683	34.683	54.807
(U) Total Adjustments	-1.646	-0.094	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.094	
Congressional Increases			
Reprogrammings	-1.465		
SBIR/STTR Transfer	-0.181		
(U) <u>Significant Program Changes:</u>			
FY10 \$3.1M in additional funds			

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>					PE NUMBER AND TITLE <b>0305116F AERIAL TARGETS</b>			PROJECT NUMBER AND TITLE <b>5136 Target Systems Development</b>		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5136 Target Systems Development	5.683	34.683	4.018	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

Full-scale and subscale targets assure warfighters that weapon systems will perform effectively against real-world enemy fighters and cruise missiles. The BQM-167A Air Force Subscale Aerial Target (AFSAT) is a jet powered drone aircraft measuring approximately 20 feet long with a mission to simulate threat aircraft for testing and evaluation of surface-to-air, ship-to-air, or air-to-air missiles. The target accomplishes this mission through the use of optional payloads including chaff and flare, electronic attack, and infrared devices.

The 691 ARSS, in consultation with the system operators and maintainers, has implemented a continuing system improvement process. Funding in FY10 will continue improvement of launch phase performance and overall reliability improvement efforts. In addition, efforts are on-going to determine ways to improve the efficiency of BQM-167A maintenance processes. Results of on-going system improvement efforts are evaluated to determine which improvements will be incorporated into the BQM-167A. Also funds development, improvements, and updates of target control systems and specialized target payload subsystems for requirements such as: missile scoring, electronic attack and infrared (IR) countermeasures, radar and IR signature augmentation, and chaff and flare dispensing systems.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Continue Aerial Targets basic operating support.	0.661	0.759	0.782
(U) Continue system acquisition and engineering support to include studies, upgrades for the target control system, the weapon scoring system, payload systems and other aerial targets support systems.		0.100	0.100
(U) QF-16 Government Furnished Property	1.073	22.215	
(U) QF-16 Development Program - Government Support	2.392	6.840	
(U) Continue product improvement program for the Air Force Subscale Aerial Target (AFSAT) program to include payload and propulsion improvements, radar augmentation, alternate launch methods and other objective requirements/enhancements.	1.557	4.769	3.136
(U) Total Cost	5.683	34.683	4.018

Note: QF-16 program was a new start in FY08. FY10 is the first year that funds have been broken out into a separate BPAC.

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) PE0305116F: Appn: Aircraft Procurement, AF(APAF), Program Title: Aerial Targets	77.079	70.364	78.511						Continuing	TBD
(U) Initial Spares	0.472	0.517	0.523						Continuing	TBD

Exhibit R-2a, RDT&E Project Justification

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305116F AERIAL TARGETS

PROJECT NUMBER AND TITLE

5136 Target Systems Development

(U) **C. Other Program Funding Summary (\$ in Millions)**

(U) Munitions	3.685	4.095	4.131	Continuing	TBD
(U) Electronic Attack Pods	5.537	5.133	10.196	Continuing	TBD

(U) **D. Acquisition Strategy**

The acquisition strategy is competitive, with fixed price and time and materials contracts.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE				
<b>07 Operational System Development</b>				<b>0305116F AERIAL TARGETS</b>					<b>5136 Target Systems Development</b>				
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>	
(U) <u>Product Development</u> AFSAT P3I Efforts	FFP, T&M, CPIF	Composite Engineering Inc., Sacramento CA	4.229	1.557		4.769	Jan-09	3.136	Nov-09		13.691		
QF-16 Risk Reduction activities	TBD	TBD	2.000	3.465		29.055					34.520		
Subtotal Product Development			6.229	5.022		33.824		3.136		0.000	48.211	0.000	
Remarks:	Pre-planned product improvements for the AFSAT Subscale Aerial Target												
(U) <u>Support</u> Mission Support	Various	Various	1.000	0.661		0.759		0.782			3.202		
Subtotal Support			1.000	0.661		0.759		0.782		0.000	3.202	0.000	
Remarks:	FY08 Mission Support Includes Withhold of \$1.646												
(U) <u>Test &amp; Evaluation</u> Continue system acquisition and engineering support to include studies, upgrades for the target control system, the weapon scoring system, payload systems and other aerial targets support systems			0.100			0.100		0.100			0.300		
Subtotal Test & Evaluation			0.100	0.000		0.100		0.100		0.000	0.300	0.000	
Remarks:													
(U) <u>Management</u> System Acq and Engineering Support	Various	Various	0.000	0.000		0.000		0.000			0.000		
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000	
Remarks:													
(U) Total Cost			7.329	5.683		34.683		4.018		0.000	51.713	0.000	

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0305116F AERIAL TARGETS

PROJECT NUMBER AND TITLE  
5136 Target Systems Development

FOR OFFICIAL USE ONLY

# Program Schedule



691 ARSS

EFFORTS	FY08	FY09	FY10
AFSAT Future Efforts to evaluate and develop product improvements to provide enhancements, improve reliability and reduce costs	▲		
<b>FY08-10 PLANNED EFFORTS</b>			
Launch Improvements	▲		
Radar Augmentation RCS, IR, Towed Target			▲
Alternate Launch Methods			▲

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Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305116F AERIAL TARGETS

PROJECT NUMBER AND TITLE

5136 Target Systems Development

(U) Schedule Profile

FY 2008

FY 2009

FY 2010

(U) Launch Improvement Study

1Q

(U) Radar Augmentation

1Q

(U) Alternate Launch Method Study

1Q

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>					PE NUMBER AND TITLE <b>0305116F AERIAL TARGETS</b>			PROJECT NUMBER AND TITLE <b>5366 QF-16</b>		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5366 QF-16	0.000	0.000	50.789	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

Title 10 United States Code 2366 requires all new or improved weapons systems to demonstrate their lethality and survivability prior to production. Aerial targets with on-board payloads (like Electronic Counter Countermeasures (ECCM)) are the current mechanisms to support demonstration of these capabilities. The United States Air Force's (USAF) Air Superiority Modernization/Mission Area Plan has identified aerial targets as a capability shortfall. The QF-16 program's objective is to fulfill this requirement. FY10 funding supports continued development of the QF-16 full scale aerial target. Also funds development, improvements, and updates of target control systems and specialized target payload subsystems for requirements such as: missile scoring, electronic attack and infrared (IR) countermeasures, radar and IR signature augmentation, and chaff and flare dispensing systems.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) QF-16 Development Program - Contractor			27.721
(U) QF-16 Development Program - Government Furnished Property			15.453
(U) QF-16 Development Program - Government Support			7.615
(U) Total Cost	0.000	0.000	50.789

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) PE0305116F: Appn: Aircraft Procurement, AF (APAF), Program Title: Aerial Targets	77.079	70.364	78.511	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
(U) Initial Spares	0.476	0.518	0.523	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
(U) Munitions	3.685	4.095	4.131	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
(U) Electronic Attack Pods	5.537	5.133	10.196	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

**(U) D. Acquisition Strategy**

The acquisition strategy is competitive with planned fixed price incentive and time and materials contracts.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>07 Operational System Development</b>				<b>0305116F AERIAL TARGETS</b>					<b>5366 QF-16</b>			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
Development of Drone Peculiar Equipment	TBD	TBD						27.721	Jan-10		27.721	
Airframe/Engine GFE	N/A	Government						15.453			15.453	
Subtotal Product Development			0.000	0.000		0.000		43.174		0.000	43.174	0.000
Remarks:												
(U) <u>Support</u>												
QF-16 Program Support								4.480			4.480	
Subtotal Support			0.000	0.000		0.000		4.480		0.000	4.480	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Management</u>												
Subtotal Management	N/A	N/A	0.000	0.000		0.000		3.135		0.000	3.135	0.000
Remarks:												
(U) Total Cost			0.000	0.000		0.000		50.789		0.000	50.789	0.000



Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0305116F AERIAL TARGETS

PROJECT NUMBER AND TITLE  
5366 QF-16

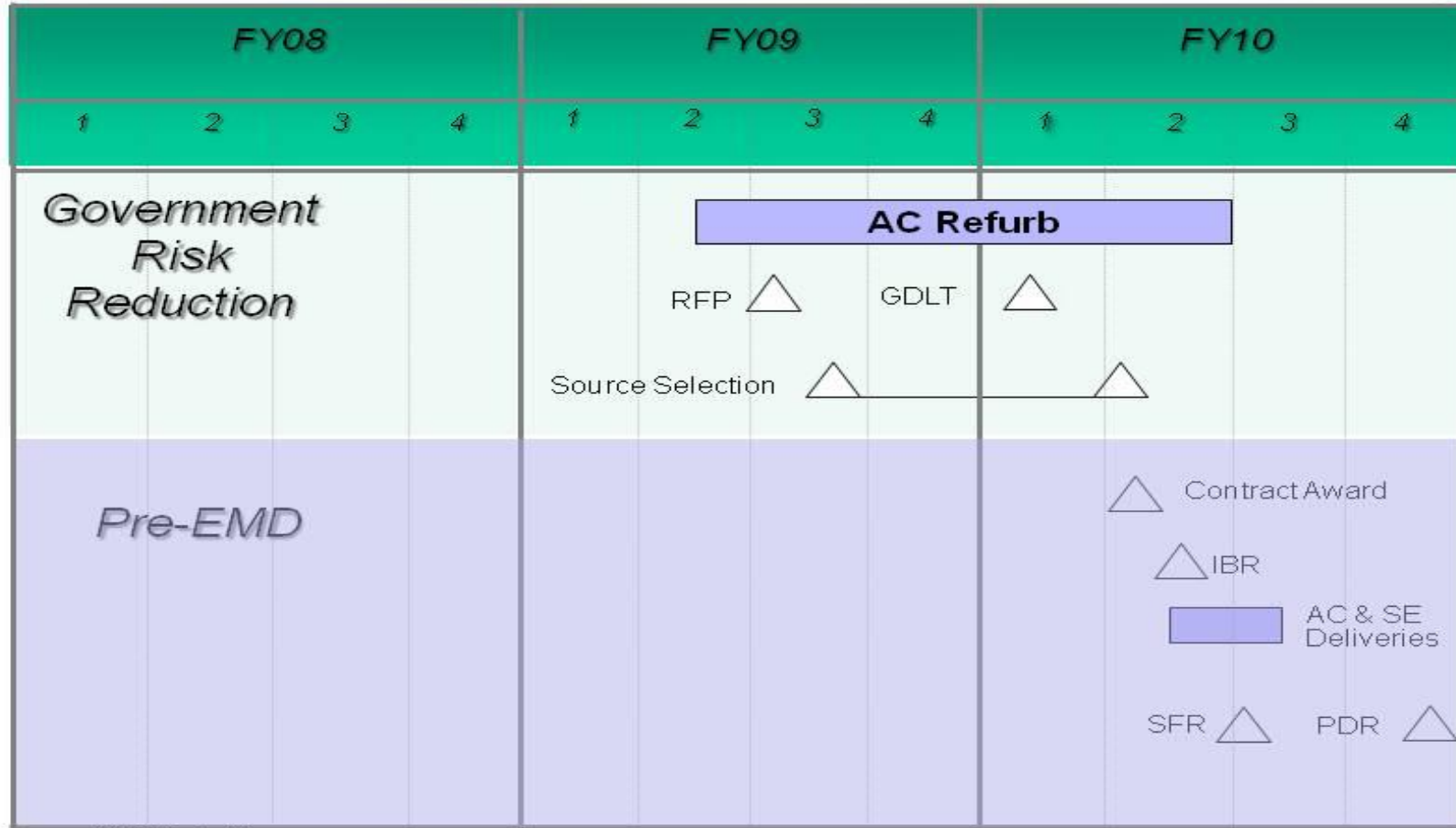
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# QF-16 Program Schedule



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Current as of 24 Feb 09

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Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305116F AERIAL TARGETS

PROJECT NUMBER AND TITLE

5366 QF-16

(U) Schedule Profile

FY 2008

FY 2009

FY 2010

(U) QF-16 Development Contract

2Q

**UNCLASSIFIED**

PE NUMBER: 0305128F  
 PE TITLE: Security And Investigative Activities

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0305128F Security And Investigative Activities</b>
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	1.922	0.784	0.742	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
1931 TECH SURVEIL COUNTER MEAS EQPT	1.922	0.784	0.742	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

**(U) A. Mission Description and Budget Item Justification**

Air Force Office of Special Investigations (AFOSI) conducts specialized investigative activities and force protection support for Air Force (AF) commanders worldwide. This assists AF commanders in protecting their people and resources. AFOSI's mission includes investigating criminal matters affecting AF personnel, contract fraud and economic crimes involving AF weapons systems and spare parts, the investigation of environmental crime, counterdrugs, computer intrusion detection and forensic media analysis of computer crimes. This element supports Technical Surveillance Countermeasures (TSCM), Computer Crime Investigations (CCI), and technical support to criminal and counterintelligence investigations and operations conducted by AFOSI. AFOSI's TSCM mission conducts counterintelligence investigations for both AF and DoD facilities and programs in order to deter and detect technical surveillance operations conducted by Foreign Intelligence Services to compromise classified or sensitive information. The purpose of CCI research is to improve AF and DoD Information Operations capability by enhancing AFOSI's ability to deter or prevent spies, hackers, or saboteurs from manipulating, damaging, or stealing sensitive war fighting data or systems. Failing that, to investigate, identify, and prosecute those who do. While most research to meet operational requirements is Operational System Development, there is also research in the category of Engineering and Manufacturing Development due to a need for modifications to present technology.

The equipment required to provide technical support to investigations is unique and complex. This equipment must be continually updated to provide state-of-the-art capabilities to detect and neutralize criminal activities targeted against the AF and DoD. In an era of advancing technology, reduced manning, and increasingly high level fraud, environmental crime and computer crime investigations, technical investigative equipment must be continuously updated to enable AFOSI special agents to have the most cost effective and best possible means of thwarting criminal acts. The evolution of a new wave of computer crimes has made AFOSI responsible for the collection, investigative analysis, national level law enforcement coordination, and dissemination of hacker activity and intrusion incidents for the Air Force. AFOSI's computer crime equipment must stay on the leading edge of technology to collect criminal information as well as pursue and apprehend criminals through a global medium. AFOSI must continually update its existing high tech computer surveillance equipment to support ongoing and future investigative operations to identify hackers and hacker groups, as well as potential hostile government activities targeting Air Force communication and control systems.

Critical Infrastructure Protection identifies weaknesses in the Air Force Critical infrastructure, highlights critical countermeasures and acquires and deploys cost-effective solutions. The intent is to provide an Air Force-wide review of current infrastructure vulnerabilities; prioritize AF protection planning and integrate with existing programs; identify gaps based on AF needs; direct studies to refine AF requirements.

This program is in Budget Activity 7, Operational System Development, because its products are primarily for use in investigative activity of an operational nature.

Exhibit R-2, RDT&E Budget Item Justification

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305128F Security And Investigative Activities

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	1.922	0.784	0.755
(U) Current PBR/President's Budget	1.922	0.784	0.742
(U) Total Adjustments	0.000	0.000	
(U) Congressional Program Reductions			
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer			
(U) <u>Significant Program Changes:</u>			

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> 07 Operational System Development	<b>PE NUMBER AND TITLE</b> 0305128F Security And Investigative Activities	<b>PROJECT NUMBER AND TITLE</b> 1931 TECH SURVEIL COUNTER MEAS EQPT
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	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
1931 TECH SURVEIL COUNTER MEAS EQPT	1.922	0.784	0.742	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

Air Force Office of Special Investigations (AFOSI) conducts specialized investigative activities and force protection support for Air Force (AF) commanders worldwide. This assists AF commanders in protecting their people and resources. AFOSI's mission includes investigating criminal matters affecting AF personnel, contract fraud and economic crimes involving AF weapons systems and spare parts, the investigation of environmental crime, counterdrugs, computer intrusion detection and forensic media analysis of computer crimes. This element supports Technical Surveillance Countermeasures (TSCM), Computer Crime Investigations (CCI), and technical support to criminal and counterintelligence investigations and operations conducted by AFOSI. AFOSI's TSCM mission conducts counterintelligence investigations for both AF and DoD facilities and programs in order to deter and detect technical surveillance operations conducted by Foreign Intelligence Services to compromise classified or sensitive information. The purpose of CCI research is to improve AF and DoD Information Operations capability by enhancing AFOSI's ability to deter or prevent spies, hackers, or saboteurs from manipulating, damaging, or stealing sensitive war fighting data or systems. Failing that, to investigate, identify, and prosecute those who do. While most research to meet operational requirements is Operational System Development, there is also research in the category of Engineering and Manufacturing Development due to a need for modifications to present technology.

The equipment required to provide technical support to investigations is unique and complex. This equipment must be continually updated to provide state-of-the-art capabilities to detect and neutralize criminal activities targeted against the AF and DoD. In an era of advancing technology, reduced manning, and increasingly high level fraud, environmental crime and computer crime investigations, technical investigative equipment must be continuously updated to enable AFOSI special agents to have the most cost effective and best possible means of thwarting criminal acts. The evolution of a new wave of computer crimes has made AFOSI responsible for the collection, investigative analysis, national level law enforcement coordination, and dissemination of hacker activity and intrusion incidents for the Air Force. AFOSI's computer crime equipment must stay on the leading edge of technology to collect criminal information as well as pursue and apprehend criminals through a global medium. AFOSI must continually update its existing high tech computer surveillance equipment to support ongoing and future investigative operations to identify hackers and hacker groups, as well as potential hostile government activities targeting Air Force communication and control systems.

Critical Infrastructure Protection identifies weaknesses in the Air Force Critical infrastructure, highlights critical countermeasures and acquires and deploys cost-effective solutions. The intent is to provide an Air Force-wide review of current infrastructure vulnerabilities; prioritize AF protection planning and integrate with existing programs; identify gaps based on AF needs; direct studies to refine AF requirements.

This program is in Budget Activity 7, Operational System Development, because its products are primarily for use in investigative activity of an operational nature.

**UNCLASSIFIED**

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0305128F Security And Investigative Activities</b>	<b>PROJECT NUMBER AND TITLE</b> <b>1931 TECH SURVEIL COUNTER MEAS EQPT</b>
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<b>(U) B. Accomplishments/Planned Program (\$ in Millions)</b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Next Generation Technical Surveillance Countermeasures (TSCM) receiver	0.260	0.270	0.270
(U) Continue development of Computer Crimes Investigative (CCI) Equipment & Software	0.300	0.273	0.250
(U) Next Generation TSCM receiver continuing development	1.362	0.241	0.222
(U) Total Cost	1.922	0.784	0.742

<b>(U) C. Other Program Funding Summary (\$ in Millions)</b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>			
(U) Other Procurement/Technical Surveillance Countermeasures Equipment 3080/WSC 846030	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
(U) Other Procurement/Heavily Armored Vehicle 3080/WSC 821700	0.246	0.250	0.265	0.270	0.285	0.287	0.280	0.280	0.280	Continuing	TBD

**(U) D. Acquisition Strategy**  
Market Research is accomplished jointly within the DoD, Counterintelligence, and Law Enforcement communities with the various government laboratories and major defense contractors to identify locations with the ability to develop investigative tools unique to our mission needs, these technologies, capabilities, and limitations of current and future investigative tools is sometimes highly sensitive or classified.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE						PROJECT NUMBER AND TITLE		
<b>07 Operational System Development</b>				<b>0305128F Security And Investigative Activities</b>						<b>1931 TECH SURVEIL COUNTER MEAS EQPT</b>		
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
Sandia Natl Lab	MIPR			0.296	Apr-08	0.386	Mar-09	0.400	Mar-10	Continuing	TBD	TBD
AFWIC	MIPR			0.250	Apr-08	0.200	Mar-09	0.220	Mar-10	Continuing	TBD	TBD
Other Agency	MIPR			1.376	Apr-08	0.198	Apr-09	0.122	Apr-10	Continuing	TBD	TBD
Subtotal Product Development			0.000	1.922		0.784		0.742		Continuing	TBD	TBD
Remarks:												
(U) <u>Support</u>											0.000	0.000
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>											0.000	0.000
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Management</u>											0.000	0.000
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>AF Infrastructure Protection Studies</u>												
Subtotal AF Infrastructure Protection Studies												
Remarks:												
(U) Subtotal			0.000	0.000		0.000		0.000				
Remarks:		Subtotal Subtotal										
(U) Subtotal											0.000	
(U) Total Cost			0.000	1.922		0.784		0.742		Continuing	TBD	TBD
Remarks:												

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0305128F Security And Investigative  
Activities

PROJECT NUMBER AND TITLE  
1931 TECH SURVEIL COUNTER  
MEAS EQPT

**SECURITY AND INVESTIGATIVE ACTIVITIES**

Fiscal Year	FY08				FY09				FY10			
	1	2	3	4	1	2	3	4	1	2	3	4
CCI Software Items	[ ]				[ ]				[ ]			
TSCM Receiver	[ ]				[ ]				[ ]			



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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>		DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0305128F Security And Investigative Activities</b>	<b>PROJECT NUMBER AND TITLE</b> <b>1931 TECH SURVEIL COUNTER MEAS EQPT</b>
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	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) <b><u>Schedule Profile</u></b>			
(U) TSCM Receiver	2-4Q	2-4Q	1-4Q
(U) CCI Software/Equipment	2-3Q	2-3Q	1-4Q

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PE NUMBER: 0305146F  
 PE TITLE: Defense Joint Counter Intelligence Program

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0305146F Defense Joint Counter Intelligence Program</b>
--	--

Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.000	0.039	0.039	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1931 TECH SURVEIL COUNTER MEAS EQPT	0.000	0.039	0.039	0.000	0.000	0.000	0.000	0.000	0.000	0.000

**(U) A. Mission Description and Budget Item Justification**

This effort encompasses protection of defense critical technology and infrastructure, personnel, and operations from foreign intelligence services, terrorists and other covert and clandestine threats. There are five sub-projects; CI Support to Force Protection, CI Support to Combatant Commands and Defense Agencies, Research Critical Technology Protection, CI Information Infrastructure Protection and CI Technical Services.

This project is in Budget Activity 07, Operational System Development, because it supports research and development activities for fielded weapon systems.

**(U) B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	0.000	0.039	0.040
(U) Current PBR/President's Budget	0.000	0.039	0.039
(U) Total Adjustments	0.000	0.000	
(U) Congressional Program Reductions			
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer			

**(U) Significant Program Changes:**

Funding for the Air Force CounterIntelligence (CI) mission.

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>					PE NUMBER AND TITLE <b>0305146F Defense Joint Counter Intelligence Program</b>			PROJECT NUMBER AND TITLE <b>1931 TECH SURVEIL COUNTER MEAS EQPT</b>		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
1931 TECH SURVEIL COUNTER MEAS EQPT	0.000	0.039	0.039	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

This effort encompasses protection of defense critical technology and infrastructure, personnel, and operations from foreign intelligence services, terrorists and other covert and clandestine threats. There are five sub-projects; CI Support to Force Protection, CI Support to Combatant Commands and Defense Agencies, Research Critical Technology Protection, CI Information Infrastructure Protection and CI Technical Services.

This project is in Budget Activity 07, Operational System Development, because it supports research and development activities for fielded weapon systems.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Funds manpower authorizations, support equipment, necessary facilities and associated costs.		0.039	0.039
(U)			
(U)			
(U) Total Cost	0.000	0.039	0.039

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to Complete</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>		
(U) PE35128F, Security/Investigative Activities	0.829	0.793	0.804	0.809	0.823	0.841			Continuing	TBD

**(U) D. Acquisition Strategy**

Accomplished jointly within the DoD, Counterintelligence, and Law Enforcement communities with the various government laboratories, and major defense contractors to identify locations with the ability to develop investigative tools unique to our mission needs.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>07 Operational System Development</b>				<b>0305146F Defense Joint Counter Intelligence Program</b>					<b>1931 TECH SURVEIL COUNTER MEAS EQPT</b>			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
Technical Services	various	various	0.000			0.039	Mar-09	0.039	Mar-10	Continuing	TBD	TBD
Subtotal Product Development			0.000	0.000		0.039		0.039		Continuing	TBD	TBD
Remarks:												
(U) <u>Support</u>												
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			0.000	0.000		0.039		0.039		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

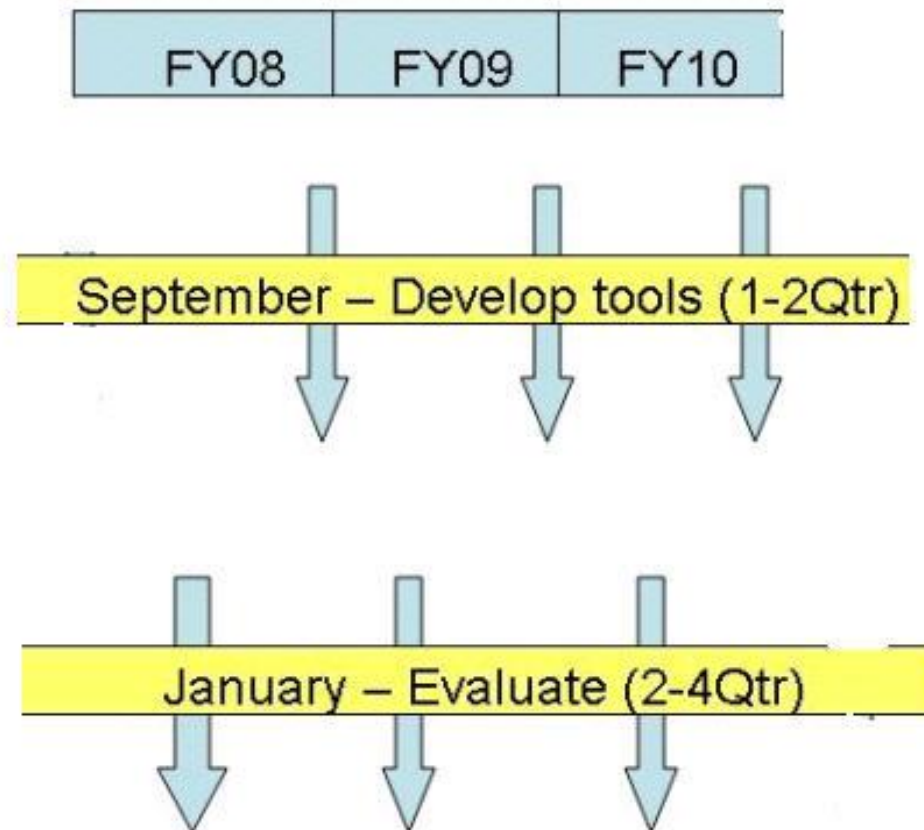
May 2009

BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0305146F Defense Joint Counter  
Intelligence Program

PROJECT NUMBER AND TITLE  
1931 TECH SURVEIL COUNTER  
MEAS EQPT

# Defense Joint Counterintelligence Program



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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0305146F Defense Joint Counter Intelligence Program</b>	<b>PROJECT NUMBER AND TITLE</b> <b>1931 TECH SURVEIL COUNTER MEAS EQPT</b>
--	--	---

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) <u>Schedule Profile</u>			
(U) Develop tools		1-2Q	1-2Q
(U) Test and Evaluate		2-4Q	2-4Q

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**UNCLASSIFIED**

PE NUMBER: 0305164F

PE TITLE: NAVSTAR Global Positioning System User Equipment Space

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0305164F NAVSTAR Global Positioning System User Equipment Space</b>
--	--

Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	150.979	126.712	137.692	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
3028 Navstar GPS	150.979	126.712	137.692	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

**(U) A. Mission Description and Budget Item Justification**

The Global Positioning System (GPS) is a space-based radio positioning, navigation, and time distribution system. GPS User Equipment (UE) consists of standardized receivers, antennas, antenna electronics, etc., grouped together in sets to derive navigation and time information transmitted from GPS satellites. These receiver sets are used by DoD. RDT&E funds UE development and testing, studies and engineering to assist UE aircraft integration, software upgrades, product improvement studies, commercial GPS UE test and evaluation, and mission support.

Due to increasing military dependence on GPS and emerging Electronic Warfare (EW) threat, the Navigation Warfare (Navwar) program was established to address EW solutions for GPS. Key elements of GPS Modernization include protecting U.S. military and allies' use of GPS, preventing hostile exploitation of GPS, and preserving civil use of GPS outside the area of operations (AO). Military GPS User Equipment (MGUE) will continue the proof of concept work accomplished by the Modernized User Equipment (MUE) effort which laid the foundation for the next generation of air, ground and space based GPS UE that will receive Y-code, Military (M)-code, and Coarse Acquisition code (YMCA).

This program element is in Budget Activity 7 - Operational System Development, because UE supports operational systems.

**(U) B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	154.581	127.513	156.797
(U) Current PBR/President's Budget	150.979	126.712	137.692
(U) Total Adjustments	-3.602	-0.801	
(U) Congressional Program Reductions		-0.344	
Congressional Rescissions		-0.457	
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer	-3.602		

**(U) Significant Program Changes:**

-\$0.801M in FY09 for Congressional General Reductions. -\$17.000M in FY10 for higher DoD priorities.

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>					PE NUMBER AND TITLE <b>0305164F NAVSTAR Global Positioning System User Equipment Space</b>			PROJECT NUMBER AND TITLE <b>3028 Navstar GPS</b>		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
3028 Navstar GPS	150.979	126.712	137.692	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

The Global Positioning System (GPS) is a space-based radio positioning, navigation, and time distribution system. GPS User Equipment (UE) consists of standardized receivers, antennas, antenna electronics, etc., grouped together in sets to derive navigation and time information transmitted from GPS satellites. These receiver sets are used by DoD. RDT&E funds UE development and testing, studies and engineering to assist UE aircraft integration, software upgrades, product improvement studies, commercial GPS UE test and evaluation, and mission support.

Due to increasing military dependence on GPS and emerging Electronic Warfare (EW) threat, the Navigation Warfare (Navwar) program was established to address EW solutions for GPS. Key elements of GPS Modernization include protecting U.S. military and allies' use of GPS, preventing hostile exploitation of GPS, and preserving civil use of GPS outside the area of operations (AO). Military GPS User Equipment (MGUE) will continue the proof of concept work accomplished by the Modernized User Equipment (MUE) effort which laid the foundation for the next generation of air, ground and space based GPS UE that will receive Y-code, Military (M)-code, and Coarse Acquisition code (YMCA).

This program element is in Budget Activity 7 - Operational System Development, because UE supports operational systems.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Continue Advanced UE Technology efforts	8.153	10.000	13.640
(U) Continue Selective Availability Anti-Spoofing Module (SAASM)/GPS Receiver Applications Module (GRAM-SAASM) development	3.634	2.275	0.900
(U) Continue System Engineering & Integration (SE&I)	7.301	4.705	7.746
(U) Continue Program Support	23.374	27.622	36.117
(U) Continue Modernized User Equipment (MUE/MGUE)	106.587	80.307	77.072
(U) Continue Integration, Test and Evaluation	1.930	1.803	2.217
(U) Total Cost	150.979	126.712	137.692

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to Complete</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>		
(U) AF RDT&E										
(U) Other APPN										

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0305164F NAVSTAR Global Positioning System User Equipment Space</b>	<b>PROJECT NUMBER AND TITLE</b> <b>3028 Navstar GPS</b>
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**(U) C. Other Program Funding Summary (\$ in Millions)**

(U) Operations and Maintenance (PE 0305164F, BA 1 - Operating Forces, SAG 11M, 13D)	2.798	6.010	5.236		Continuing	TBD
(U) Aircraft Procurement (PE 0305164F, BA 7, Aircraft Support Equipment, BP19)	12.508	15.789	19.530		Continuing	TBD
(U) Other Procurement (PE 0305164F, BP 83 - Electronics & Telecommunications Equipment, WSC 836730, P-62)	8.047	5.989	5.805		Continuing	TBD

**(U) D. Acquisition Strategy**

The GPS Wing acquisition strategy is to continue the development of GPS user equipment (UE) to support current warfighter activities and execute concept definition and technology risk reduction programs that will define and mature technologies needed for GPS Modernization. The GPS UE program will continue Selective Availability Anti-Spoofing Module (SAASM) receiver development /production and work with platforms/users to identify requirements and upgrade paths for GPS enhancements. Additionally, several anti-jam technology risk reduction efforts will be pursued to mature technologies and prepare for technology insertion to combat the potential threat that U.S. forces may be denied the use of GPS signals.

The Modernized User Equipment (MUE) program awarded three contracts to produce technical demonstration cards and forms the foundation (Increment 0) for the Military GPS User Equipment effort (MGUE). MUE is scheduled to deliver tech demo cards EOY FY09 with testing to follow in FY10 to demonstrate Technology Readiness Level (TRL) 6. The MGUE effort continues the Y-Code/M-code/Coarse Acquisition (YMCA) proof of concept development. MGUE will involve a separate RFP with awarded contract(s) to develop "product ready status" cards for initial lead platforms. MGUE will meet ASD/NII GPS User Equipment policy memo and JROC capability development document requirements.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE  
**May 2009**

<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0305164F NAVSTAR Global Positioning System User Equipment Space</b>	<b>PROJECT NUMBER AND TITLE</b> <b>3028 Navstar GPS</b>
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(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> Receiver Technology	Various	AFRL - WPAFB, OH & KAFB, NM, SPAWAR, CECOM	19.562	0.500	Jan-08	0.000	Nov-08	7.000	Nov-09	Continuing	TBD	
Advanced Antenna Technology	Various	Various	70.081	6.611	Jan-08	10.000	Nov-08	6.640	Nov-09	Continuing	TBD	
DOE Sandia (SAASM)	MIPR	Kirtland AFB, NM	47.981	3.034	Jan-08	1.425	Nov-08	0.600	Nov-09	Continuing	TBD	
Various (SAASM/GB-GRAM)	Various	Various	31.144	0.600	Jan-08	0.850	Nov-08	0.300	Nov-09	Continuing	TBD	
Various (Modernized UE)	Various	Various	242.090	106.587	Jan-08	80.307	Nov-08	77.072	Nov-09	Continuing	TBD	
Holloman AFB (Various Integration)	Project Order	46th TG, Holloman AFB, NM	6.884	0.300	Jan-08	0.000	Nov-08	0.700	Nov-09	Continuing	TBD	
Completed UE Product Development Efforts	Various	Various	197.840	0.000		0.000		0.000		0.000	197.840	
Subtotal Product Development			615.582	117.632		92.582		92.312		Continuing	TBD	0.000
Remarks:												
(U) <u>Support</u> Wing Support	Various	Various	24.100	24.416	Jan-08	27.622	Nov-08	36.117	Nov-09	Continuing	TBD	
SE/Program Spt/Joint Navwar Center (JNWC)	Various	Various	104.455	7.301	Jan-08	4.705	Nov-08	7.746	Nov-09	Continuing	TBD	
Completed Support Efforts	Various	Various	62.490	0.000		0.000		0.000		0.000	62.490	
Subtotal Support			191.045	31.717		32.327		43.863		Continuing	TBD	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u> 46th TG/UE development & production Testing	Project Order / Various	Holloman AFB, NM / Various	55.910	1.630	Jan-08	1.803	Nov-08	1.517	Nov-09	Continuing	TBD	
Subtotal Test & Evaluation			55.910	1.630		1.803		1.517		Continuing	TBD	0.000
Remarks:												
(U) <u>Management</u> Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Subtotal			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												

R-1 Line Item No. 194

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Project 3028

Exhibit R-3 (PE 0305164F)

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY

**07 Operational System Development**

PE NUMBER AND TITLE

**0305164F NAVSTAR Global  
Positioning System User Equipment  
Space**

PROJECT NUMBER AND TITLE

**3028 Navstar GPS**

(U) Total Cost	862.537	150.979	126.712	137.692	Continuing	TBD	0.000
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Exhibit R-4, RDT&E Schedule Profile

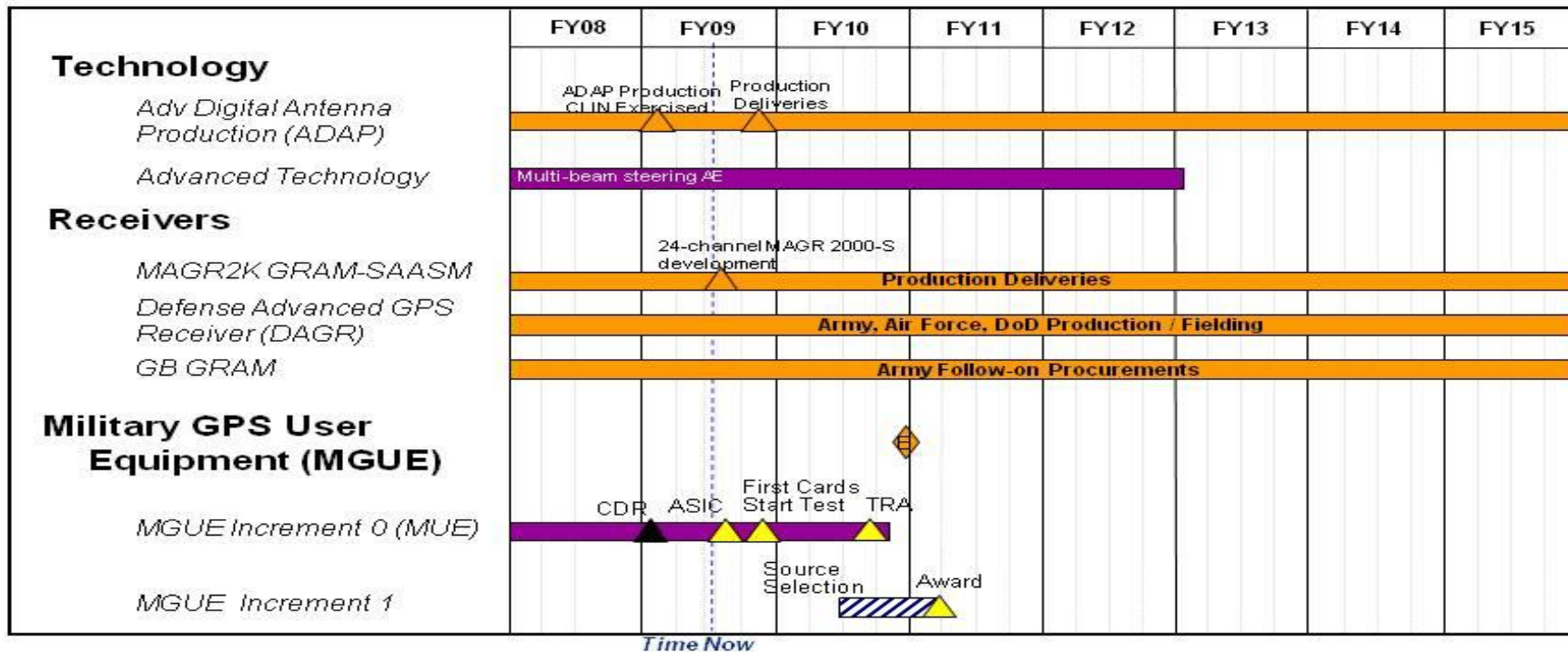
DATE

May 2009

BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0305164F NAVSTAR Global  
Positioning System User Equipment  
Space

PROJECT NUMBER AND TITLE  
3028 Navstar GPS



GRAM: GPS Receiver Applications Module      PDR: Preliminary Design Review      TRA: Technical Readiness Assessment (TRL6)  
 CDR: Critical Design Review      LRU I&T: Line Replaceable Unit Integration & Technology  
 SAASM: Selective Availability Anti-Spoofing Module      AE: Antenna Electronics  
 LRIP: Low Rate Initial Production      MEMS IMU: Micro-Electro Mechanical Inertial Measurement Unit

<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0305164F NAVSTAR Global Positioning System User Equipment Space</b>	<b>PROJECT NUMBER AND TITLE</b> <b>3028 Navstar GPS</b>
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<b>(U) <u>Schedule Profile</u></b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) MGUE In Process Review	4Q		
(U) Advance Digital Antenna Production (ADAP) contract award		1Q	
(U) Military User Equipment (MUE) Critical Design Review (CDR)		1Q	
(U) ADAP deliveries begin		4Q	
(U) Military GPS User Equipment (MGUE) Increment 1 Request for Proposal (RFP) release			3Q
(U) MGUE KDP-B			4Q

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**UNCLASSIFIED**

PE NUMBER: 0305165F  
 PE TITLE: NAVSTAR GPS (Space)

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0305165F NAVSTAR GPS (Space)</b>
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	110.224	90.711	52.039	0.000	0.000	0.000	0.000	0.000	0.000	2,033.521
3030 NAVSTAR GPS (Space & Control)	110.224	90.711	52.039	0.000	0.000	0.000	0.000	0.000	0.000	2,033.521

**(U) A. Mission Description and Budget Item Justification**

This Program Element (PE) funds Research and Development (R&D) for the Navstar Global Positioning System (GPS) Space and Control segments for GPS Block II satellites. It includes, but not limited to: satellite development, training simulators, Integrated Logistics Support (ILS) products, ground control segment development, procurement, and operation; sustaining engineering; space and ground segments upgrades; and R&D efforts to support GPS Block II system deployment including efforts to provide anti-jam capability through increased Military(M)-Code signal power.

GPS Block IIR-M are modernized Block IIR vehicles and include a 2nd civil signal (L2C) and M-code. GPS Block IIF satellites are being developed to include a third civil signal (L5).

Operational Control Segment (OCS) will deliver control segment capabilities to support Block IIF satellites as well as the existing constellation of Block IIA/IIR/IIR-M satellites. The full capabilities inherent in the modernized Block IIR-M and IIF satellites will be provided in increment 1 of the Next Generation GPS Control Segment (OCX) which is funded in Program Element 0603421F (FY08), 0603427F and 0603423F (FY09), and 0305265F (FY10-15).

This program is in Budget Activity 7 - Operational Systems Development because it supports operational systems.

**(U) B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	119.089	91.277	56.335
(U) Current PBR/President's Budget	110.224	90.711	52.039
(U) Total Adjustments	-8.865	-0.566	
(U) Congressional Program Reductions		-0.247	
Congressional Rescissions		-0.319	
Congressional Increases			
Reprogrammings	-3.600		
SBIR/STTR Transfer	-5.265		

**(U) Significant Program Changes:**

-3.600M in FY08 for higher Air Force priorities; -\$0.566 in FY09 for Congressional General Reductions. -\$4.296M in FY10 for higher DoD priorities.

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>							PE NUMBER AND TITLE <b>0305165F NAVSTAR GPS (Space)</b>		PROJECT NUMBER AND TITLE <b>3030 NAVSTAR GPS (Space &amp; Control)</b>		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total	
3030 NAVSTAR GPS (Space & Control)	110.224	90.711	52.039	0.000	0.000	0.000	0.000	0.000	0.000	2,033.521	
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0			

**(U) A. Mission Description and Budget Item Justification**

This Program Element (PE) funds Research and Development (R&D) for the Navstar Global Positioning System (GPS) Space and Control segments for GPS Block II satellites. It includes, but not limited to: satellite development, training simulators, Integrated Logistics Support (ILS) products, ground control segment development, procurement, and operation; sustaining engineering; space and ground segments upgrades; and R&D efforts to support GPS Block II system deployment including efforts to provide anti-jam capability through increased Military(M)-Code signal power.

GPS Block IIR-M are modernized Block IIR vehicles and include a 2nd civil signal (L2C) and M-code. GPS Block IIF satellites are being developed to include a third civil signal (L5).

Operational Control Segment (OCS) will deliver control segment capabilities to support Block IIF satellites as well as the existing constellation of Block IIA/IIR/IIR-M satellites. The full capabilities inherent in the modernized Block IIR-M and IIF satellites will be provided in increment 1 of the Next Generation GPS Control Segment (OCX) which is funded in Program Element 0603421F (FY08), 0603427F and 0603423F (FY09), and 0305265F (FY10-15).

This program is in Budget Activity 7 - Operational Systems Development because it supports operational systems.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Continue spectrum/frequency management and program operations	14.008	29.135	9.150
(U) Continue IIF satellite development	5.200	0.000	0.000
(U) Continue Operational Control Segment (OCS) development/modernization	88.038	52.595	38.519
(U) Continue System Engineering & Integration (SE&I)	2.978	8.981	4.370
(U) Total Cost	110.224	90.711	52.039

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2008</u> <u>Actual</u>	<u>FY 2009</u> <u>Estimate</u>	<u>FY 2010</u> <u>Estimate</u>	<u>FY 2011</u> <u>Estimate</u>	<u>FY 2012</u> <u>Estimate</u>	<u>FY 2013</u> <u>Estimate</u>	<u>FY 2014</u> <u>Estimate</u>	<u>FY 2015</u> <u>Estimate</u>	<u>Cost to</u> <u>Complete</u>	<u>Total Cost</u>
(U) Other APPN										
(U) Operations and Maintenance:										
PE 0305165F, BA-01; SAG 11M,13D	66.994	82.124	95.532							
(U) Missile Procurement: PE 0305165F; BA-05; P-22, 23	237.825	109.868	53.140							

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>May 2009</b>
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BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0305165F NAVSTAR GPS (Space)</b>	PROJECT NUMBER AND TITLE <b>3030 NAVSTAR GPS (Space &amp; Control)</b>
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(U) **C. Other Program Funding Summary (\$ in Millions)**

(U) Other Procurement: PE

0305165F, BP 83, WSC

836790, P-70; WSC 836740,	11.098	25.038	7.592
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P-71; BP 86, WSC 86190A,

P-62

(U) **D. Acquisition Strategy**

GPS OCS upgrade was competitively awarded to a single contractor (Lockheed Martin) in July 1995. Block IIF satellite and IIF ground systems development contract was competitively awarded to a single contractor (Boeing) in April 1996. The Single Prime Initiative (SPI) consolidated these efforts and was added to the Boeing IIF contract (with Lockheed Martin as a subcontractor) on 1 Oct 1999. GPS Modernization efforts for the Block IIR were awarded sole source to Lockheed Martin under a new contract in August 2000. Modernization efforts for Block IIF were added to the existing contract with Boeing as Engineering Change Proposals (ECPs).

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0305165F NAVSTAR GPS (Space)</b>	<b>PROJECT NUMBER AND TITLE</b> <b>3030 NAVSTAR GPS (Space &amp; Control)</b>
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<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
<u>(U) Product Development</u>												
OCS Development & IIF Modernization (F0470196C0025)	FPAF/CPA F/CPFF	Boeing, Seal Beach, CA	1,273.561	83.995	Jan-08	49.560	Nov-08	38.519	Nov-09	Continuing	TBD	1,944.179
IIF Development (F047019C0025)	FPAF/CPA F/CPFF	Boeing, Seal Beach, CA	71.072	5.200	Jan-08	0.000		0.000		0.000	76.272	77.600
Control Segment Support	MIPR/PO	Various Gov't agencies	10.883	8.251	Jan-08	20.357	Nov-08	5.766	Nov-09	Continuing	TBD	TBD
Completed GPS Development Efforts	Various	Various	165.983	0.000		0.000		0.000		0.000	165.983	
Subtotal Product Development			1,521.499	97.446		69.917		44.285		Continuing	TBD	TBD
Remarks:												
<u>(U) Support</u>												
System Engineering/Support	Various	FFRDC (Aerospace/Mitre), SETA	61.564	2.978	Jan-08	8.981	Nov-08	4.370	Nov-09	Continuing	TBD	TBD
Completed GPS Support Efforts	Various	Various	46.480	0.000		0.000		0.000		0.000	46.480	
Subtotal Support			108.044	2.978		8.981		4.370		Continuing	TBD	TBD
Remarks:												
<u>(U) Test &amp; Evaluation</u>												
Completed GPS T&E Efforts	Various	Various	4.588	0.000		0.000		0.000		0.000	4.588	
Subtotal Test & Evaluation			4.588	0.000		0.000		0.000		0.000	4.588	0.000
Remarks:												
<u>(U) Management</u>												
Management Support	Various SETA & FFRDCs	FFRDC (Aerospace) & SETA	28.659	9.800	Jan-08	11.813	Nov-08	3.384	Nov-09	Continuing	TBD	TBD
Subtotal Management			28.659	9.800		11.813		3.384		Continuing	TBD	TBD
Remarks:												
<u>(U) Total Cost</u>			1,662.790	110.224		90.711		52.039		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

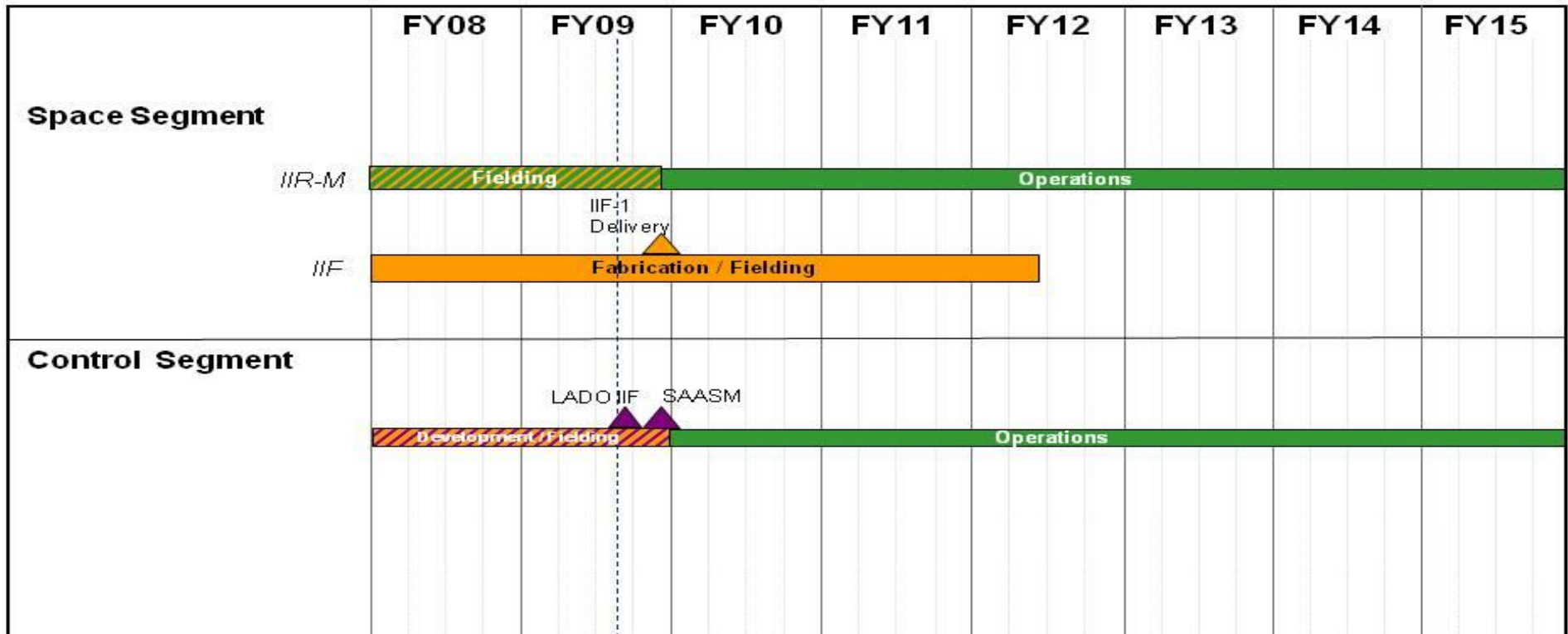
DATE

May 2009

BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0305165F NAVSTAR GPS (Space)

PROJECT NUMBER AND TITLE  
3030 NAVSTAR GPS (Space & Control)



LADO: Launch Anomaly & Disposal Ops

SAASM: Selective Availability & Anti-Spoofing Module

<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0305165F NAVSTAR GPS (Space)</b>	<b>PROJECT NUMBER AND TITLE</b> <b>3030 NAVSTAR GPS (Space &amp; Control)</b>
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	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) <b><u>Schedule Profile</u></b>			
(U) Selective Availability Anti-Spoofing Module (SAASM) system test complete	3Q		
(U) GPS Block IIF development complete	4Q		
(U) Launch, Anomaly and Disposal Operations (LADO) release 2 complete		2Q	
(U) SAASM capability complete		4Q	
(U) Certification for SAASM Multi-Service Operational Test & Evaluation (MOT&E)			2Q

**UNCLASSIFIED**

PE NUMBER: 0305173F  
 PE TITLE: Space & Missile Test & Evaluation Center

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0305173F Space &amp; Missile Test &amp; Evaluation Center</b>
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	4.986	1.967	3.599	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
A014 R&D Space and Missile Operations	4.986	1.967	3.599	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

**(U) A. Mission Description and Budget Item Justification**

The RDT&E efforts within this program focus on the Multi-Mission Satellite Operations Center (MMSOC), which the Research and Development (R&D) Space and Missile Operations (RDSMO) program started in FY07. The main objective of MMSOC is to develop the capability to rapidly support R&D and operational systems and to transition R&D space vehicle technology with residual military utility to operational status for immediate real world support. MMSOC is a multiple-mission operation system that uses standard software (1) to perform satellite command and control (C2) in support of launch requirements; (2) to develop and test tactics, techniques, procedures and concepts to conduct residual operations for R&D satellites; (3) to provide a satellite C2 incremental block evolution resource for RDT&E of new systems and concepts; and (4) to deliver operational flexibility for new and currently-flying assigned satellites. MMSOC leverages demonstrated RDT&E experience to expand the capabilities of proven technologies currently in use in RDSMO facilities. MMSOC also supports all RDSMO-sustained space vehicles through existing resources.

RDSMO develops and acquires systems to: operate experimental and demonstration satellites; operate fixed and deployable satellite ground systems; perform satellite compatibility testing; act as the focal point and center of expertise for DoD experimental and demonstration space and missile operations; support space and missile R&D; and conduct/support experimental/demonstration of space and missile Developmental Test and Evaluation (DT&E) and Initial Operational Test and Evaluation (IOT&E) activities. It consists of (1) the RDT&E Support Complex (RSC) at Kirtland AFB, NM which operates R&D satellites; (2) the Camp Parks Communication Annex at Dublin, CA which provides multi-band Telemetry Tracking and Commanding (TT&C), calibration and on-orbit testing; (3) the Test, Operations, and Programs organization at Kirtland AFB which is the focal point for tests, plans, programs, and policy and (4) the deployable test systems, based at Kirtland AFB, NM which deploys mobile antennas worldwide to support space RDT&E activities.

The RDT&E effort also includes the development of a mobile test system, known as the Next Generation Satellite Compatibility Test System (NGSCTS), used to verify satellite compatibility with the Air Force Satellite Control Network (AFSCN) Remote Block Change architecture. System will be capable of being deployed around the world to perform compatibility testing in the factory as well as launch ranges to include Kodiak, Alaska, Wallops Island, Virginia, and Kwajalein Atoll. This is a new start in FY10.

This effort is in Budget Activity 7, Operational System Development, and it supports research and development of space systems.

Exhibit R-2, RDT&E Budget Item Justification

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305173F Space & Missile Test & Evaluation Center

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	3.070	1.985	1.660
(U) Current PBR/President's Budget	4.986	1.967	3.599
(U) Total Adjustments	1.916	-0.018	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.018	
Congressional Increases			
Reprogrammings	2.000		
SBIR/STTR Transfer	-0.084		

(U) **Significant Program Changes:**

FY08: \$2.0M BTR for MMSOC to support design, development, and test.

FY10: Added \$2M to FY10 for the Next Generation Satellite Compatibility Test System (NGSCTS)



**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>					PE NUMBER AND TITLE <b>0305173F Space &amp; Missile Test &amp; Evaluation Center</b>			PROJECT NUMBER AND TITLE <b>A014 R&amp;D Space and Missile Operations</b>		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
A014 R&D Space and Missile Operations	4.986	1.967	3.599	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

The RDT&E efforts within this program focus on the Multi-Mission Satellite Operations Center (MMSOC), which the Research and Development (R&D) Space and Missile Operations (RDSMO) program started in FY07. The main objective of MMSOC is to develop the capability to rapidly support R&D and operational systems and to transition R&D space vehicle technology with residual military utility to operational status for immediate real world support. MMSOC is a multiple-mission operation system that uses standard software (1) to perform satellite command and control (C2) in support of launch requirements; (2) to develop and test tactics, techniques, procedures and concepts to conduct residual operations for R&D satellites; (3) to provide a satellite C2 incremental block evolution resource for RDT&E of new systems and concepts; and (4) to deliver operational flexibility for new and currently-flying assigned satellites. MMSOC leverages demonstrated RDT&E experience to expand the capabilities of proven technologies currently in use in RDSMO facilities. MMSOC also supports all RDSMO-sustained space vehicles through existing resources.

RDSMO develops and acquires systems to: operate experimental and demonstration satellites; operate fixed and deployable satellite ground systems; perform satellite compatibility testing; act as the focal point and center of expertise for DoD experimental and demonstration space and missile operations; support space and missile R&D; and conduct/support experimental/demonstration of space and missile Developmental Test and Evaluation (DT&E) and Initial Operational Test and Evaluation (IOT&E) activities. It consists of (1) the RDT&E Support Complex (RSC) at Kirtland AFB, NM which operates R&D satellites; (2) the Camp Parks Communication Annex at Dublin, CA which provides multi-band Telemetry Tracking and Commanding (TT&C), calibration and on-orbit testing; (3) the Test, Operations, and Programs organization at Kirtland AFB which is the focal point for tests, plans, programs, and policy and (4) the deployable test systems, based at Kirtland AFB, NM which deploys mobile antennas worldwide to support space RDT&E activities.

The RDT&E effort also includes the development of a mobile test system, known as the Next Generation Satellite Compatibility Test System (NGSCTS), used to verify satellite compatibility with the Air Force Satellite Control Network (AFSCN) Remote Block Change architecture. System will be capable of being deployed around the world to perform compatibility testing in the factory as well as launch ranges to include Kodiak, Alaska, Wallops Island, Virginia, and Kwajalein Atoll. This is a new start in FY10.

This effort is in Budget Activity 7, Operational System Development, and it supports research and development of space systems.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	FY 2008	FY 2009	FY 2010
(U) Multi-Mission Satellite Operations Center (MMSOC) development/integration	4.986	1.967	1.633
(U) Next Generation Satellite Compatibility Test System (NGSCTS) Used to verify satellite compatibility with the AFSCN RBC architecture.			1.966
(U) Total Cost	4.986	1.967	3.599

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0305173F Space &amp; Missile Test &amp; Evaluation Center</b>	<b>PROJECT NUMBER AND TITLE</b> <b>A014 R&amp;D Space and Missile Operations</b>
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**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to Complete</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>		
(U) OPAF, Electronics & Telecom Equipment (BA 03, PE 0305173F, P-20)	7.714	10.015	11.333						Continuing	TBD

**(U) D. Acquisition Strategy**

The AF uses the competitively-awarded Engineering, Development, and Sustainment (EDS) Contract, managed by Space and Missile System Center, Space Development & Test Wing (formerly Detachment 12), to modernize and sustain RDSMO on a non-interference basis as it continues to support RDT&E and other designated users. The AF uses the competitively-awarded EDS Follow-On Contract to develop MMSOC.

UNCLASSIFIED

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>07 Operational System Development</b>				<b>0305173F Space &amp; Missile Test &amp; Evaluation Center</b>					<b>A014 R&amp;D Space and Missile Operations</b>			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> Engineering, Development, and Sustainment (EDS) Follow-on Contract	C/CPAF	TBD/Kirtland, Schreiver AFB	1.114	4.039	Nov-07	1.967	Oct-08	1.633	Nov-09	Continuing	TBD	TBD
Subtotal Product Development			1.114	4.039		1.967		1.633		Continuing	TBD	TBD
Remarks:												
(U) <u>Support</u> Program Support (SETA, SPO ops)	Various	Various	0.858	0.827		0.000	Dec-08			Continuing	TBD	TBD
Subtotal Support			0.858	0.827		0.000		0.000		Continuing	TBD	TBD
Remarks:												
(U) <u>Product Development</u> System Test and Engineering (STEC) Contract	C/CPAF	Kirtland, AFB	0.554	0.120		0.000	Oct-08			Continuing	TBD	
Subtotal Product Development			0.554	0.120		0.000		0.000		Continuing	TBD	0.000
Remarks:												
(U) <u>Product Development</u> Next Generation Satellite Compatibility Test System Contract (TBD)	TBD	TBD/Kirtland AFB						1.966	Jan-10		1.966	
Subtotal Product Development			0.000	0.000		0.000		1.966		0.000	1.966	0.000
Remarks:												
(U) Total Cost			2.526	4.986		1.967		3.599		Continuing	TBD	TBD

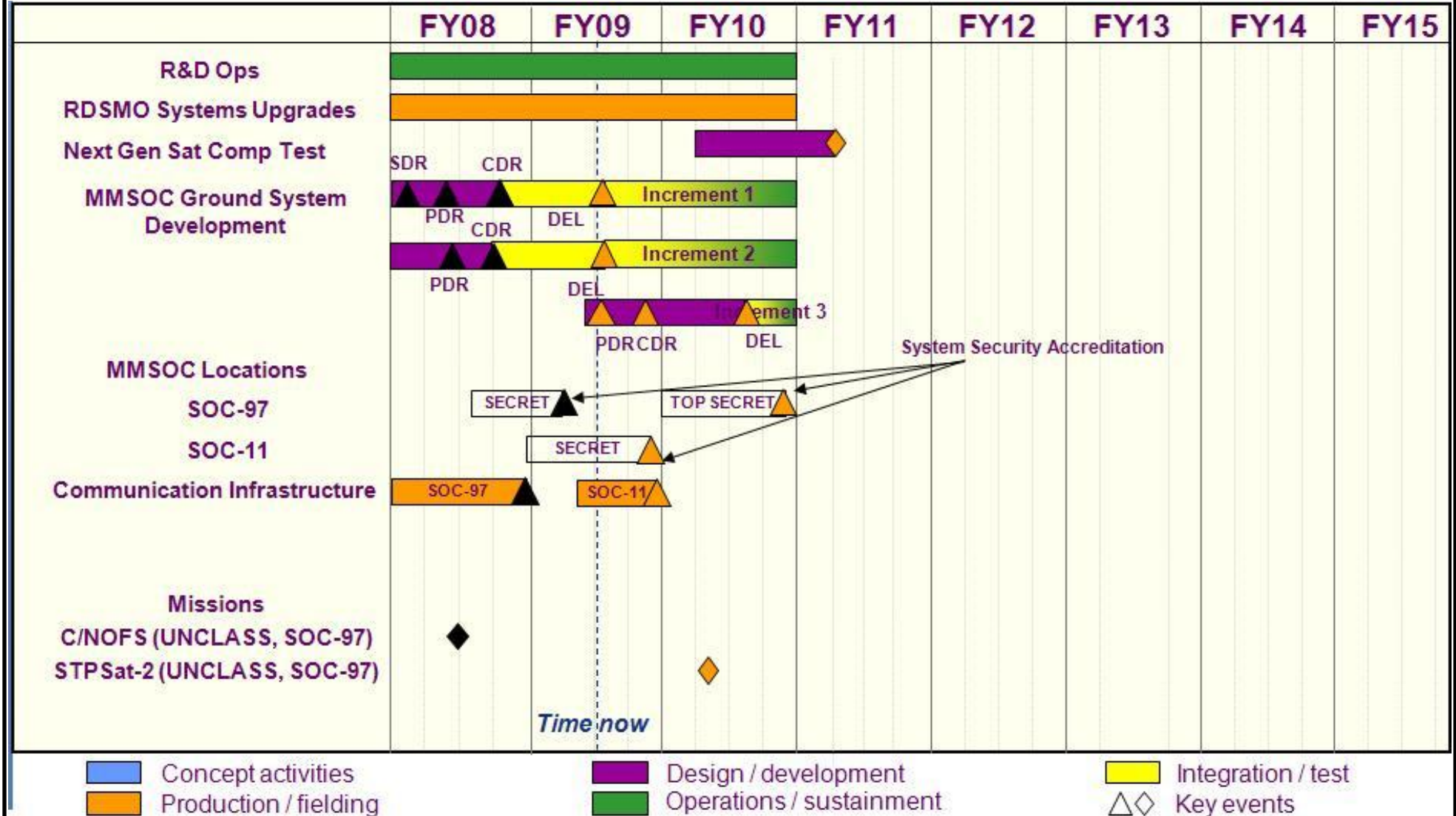
Exhibit R-4, RDT&E Schedule Profile

DATE  
May 2009

BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0305173F Space & Missile Test & Evaluation Center

PROJECT NUMBER AND TITLE  
A014 R&D Space and Missile Operations



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Project A014

Exhibit R-4 (PE 0305173F)

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**Exhibit R-4a, RDT&E Schedule Detail**

DATE

**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0305173F Space &amp; Missile Test &amp; Evaluation Center</b>	PROJECT NUMBER AND TITLE <b>A014 R&amp;D Space and Missile Operations</b>
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(U) <u>Schedule Profile</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) SDR	1Q		
(U) Increment 1 & 2 PDR	2Q		
(U) Increment 1 & 2 CDR	3Q		
(U) Increment 1-TT&C with Limited Mission Planning		2Q	
(U) Increment 2-Support 1 Mission		2Q	
(U) Increment 3-PDR		1Q	
(U) Increment 3-CDR		3Q	
(U) Increment 3-Support Multiple Missions			1Q
(U) Next Generation Satellite Compatibility Test System			

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**UNCLASSIFIED**

PE NUMBER: 0305174F  
 PE TITLE: SPACE WARFARE CENTER

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0305174F SPACE WARFARE CENTER</b>
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	1.622	2.974	3.009	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
A011 Space Analysis and Application Development	1.622	2.974	3.009	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

**(U) A. Mission Description and Budget Item Justification**

Located at Schriever Air Force Base, Colorado, the Space Innovation and Development Center develops, evaluates, tests, and integrates space application and utility concepts, as well as new technologies, while providing combat effects to warfighters, such as aid in mission planning of Global Positioning System (GPS) aided/guided munitions. Its innovation, education, and training activities foster solutions to operational deficiencies and enhance the integration of space systems into Air Force operations, thereby enabling service and joint warfighters to realize the full potential of existing and planned space capabilities.

The Space Analysis and Application Development project develops and modifies modeling and simulation tools that Air Force Space Command's Space Analysis Center uses for operations research, military utility analyses, tradeoff studies, and other evaluations of space mission areas to guide planning, programming, requirements generation, analyses of alternatives, and other activities. Development activities incorporate changes in fielded and projected space operational capabilities, as well as technical improvements, into the group's software tools to ensure their data and technology remain current.

This effort is in Budget Activity 7, Operational System Development, because it develops and modifies software models for fielded analysis systems.

**(U) B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	1.667	3.003	3.055
(U) Current PBR/President's Budget	1.622	2.974	3.009
(U) Total Adjustments	-0.045	-0.029	
(U) Congressional Program Reductions		-0.021	
Congressional Rescissions		-0.008	
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer	-0.045		
(U) <u>Significant Program Changes:</u>			

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>					PE NUMBER AND TITLE <b>0305174F SPACE WARFARE CENTER</b>			PROJECT NUMBER AND TITLE <b>A011 Space Analysis and Application Development</b>		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
A011 Space Analysis and Application Development	1.622	2.974	3.009	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

Located at Schriever Air Force Base, Colorado, the Space Innovation and Development Center develops, evaluates, tests, and integrates space application and utility concepts, as well as new technologies, while providing combat effects to warfighters, such as aid in mission planning of Global Positioning System (GPS) aided/guided munitions. Its innovation, education, and training activities foster solutions to operational deficiencies and enhance the integration of space systems into Air Force operations, thereby enabling service and joint warfighters to realize the full potential of existing and planned space capabilities.

The Space Analysis and Application Development project develops and modifies modeling and simulation tools that Air Force Space Command's Space Analysis Center uses for operations research, military utility analyses, tradeoff studies, and other evaluations of space mission areas to guide planning, programming, requirements generation, analyses of alternatives, and other activities. Development activities incorporate changes in fielded and projected space operational capabilities, as well as technical improvements, into the group's software tools to ensure their data and technology remain current.

This effort is in Budget Activity 7, Operational System Development, because it develops and modifies software models for fielded analysis systems.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Model modification	0.758	1.409	1.422
(U) Verification of model changes	0.332	0.602	0.612
(U) Validation of results	0.532	0.963	0.975
(U) Total Cost	1.622	2.974	3.009

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Other Procurement, Air Force (Weapon System Code 832070, Intelligence Communications Equipment)*	0.422	0.462	0.473						Continuing	TBD

\*Additional SIDC Other Procurement, Air Force funding (not shown) supports efforts unrelated to Space Analysis Center development activities



Exhibit R-2a, RDT&E Project Justification

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305174F SPACE WARFARE CENTER

PROJECT NUMBER AND TITLE

A011 Space Analysis and Application Development

(U) D. Acquisition Strategy

This effort was awarded under a cost plus contract.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE				
<b>07 Operational System Development</b>				<b>0305174F SPACE WARFARE CENTER</b>				<b>A011 Space Analysis and Application Development</b>				
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
Develop/modify software tools and models	FP	Various	1.860	0.538	Apr-08	1.022	Jan-09	1.069	Jan-10	Continuing	TBD	
Develop/modify software tools and models	CP	Scitor		1.084	Sep-08	1.952	Sep-09	1.940	Sep-10		4.976	
Subtotal Product Development			1.860	1.622		2.974		3.009		Continuing	TBD	0.000
Remarks:												
(U) <u>Support</u>												
Not applicable											0.000	
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
Not applicable											0.000	
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Management</u>												
Not applicable											0.000	
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			1.860	1.622		2.974		3.009		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0305174F SPACE WARFARE CENTER

PROJECT NUMBER AND TITLE  
A011 Space Analysis and Application Development

	FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY15
<b>Space Analysis Center</b>  <i>Modeling &amp; simulation activities for space mission areas</i>	<div style="background-color: purple; color: white; padding: 2px;">Modeling tool development, modification, verification, and validation</div>							
	<div style="background-color: green; color: white; padding: 2px;">Operations using existing models</div>							

- Concept activities
- Production / fielding
- Design / development
- Operations / sustainment
- Integration / test
- △◇ Key events

Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305174F SPACE WARFARE CENTER

PROJECT NUMBER AND TITLE

A011 Space Analysis and Application Development

(U) Schedule Profile

FY 2008

FY 2009

FY 2010

(U) Model modification, verification, and validation

1-4Q

1-4Q

1-4Q

**UNCLASSIFIED**

PE NUMBER: 0305182F  
 PE TITLE: Spacelift Range System

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0305182F Spacelift Range System</b>
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	25.089	12.322	9.957	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
4137 Launch and Test Range System (LTRS) Modernization	25.089	12.322	9.957	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

**(U) A. Mission Description and Budget Item Justification**

The Eastern Range (ER) at Patrick Air Force Base (AFB)/Cape Canaveral Air Force Station, FL, and the Western Range (WR) at Vandenberg AFB, CA, make up the Spacelift Range System (SLRS). They provide tracking, telemetry, communications, flight analysis, and other capabilities to safely conduct: national security, civil, and commercial spacelift operations; ballistic missile and missile defense evaluations; and aeronautical and guided weapons tests. Decreasing reliability of aging range systems adds risk. It forces the AF to use redundant assets during launches to ensure range availability, increasing operations and maintenance costs.

The AF is addressing range deficiencies through two contracts. First, the Range Standardization and Automation (RSA) Phase IIA contract modernizes the control/display and communications segments at both ranges. Systems being modernized include: weather; communications; planning and scheduling; and flight operations and analysis. Second, the SLRS Contract (SLRSC) modernizes command, telemetry, and radar instrumentation at both ranges and supports activation of the WR Operations Control Center. It also provides overall systems engineering and architecture management, and system level testing to complete the modernization effort. Some examples of the most recent deliveries on these two contracts include: automated planning and network management systems; digital telemetry systems; and optical system upgrades. RSA Phase IIA and SLRSC efforts end in FY10. The AF is awarding a separate systems engineering and integration contract in FY09 and a follow-on modernization/product improvement contract in FY10.

These upgrades to fielded systems are categorized as Budget Activity 7, Operational Systems Development.

**(U) B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	27.095	12.376	10.157
(U) Current PBR/President's Budget	25.089	12.322	9.957
(U) Total Adjustments	-2.006	-0.054	
(U) Congressional Program Reductions		-0.021	
Congressional Rescissions		-0.033	
Congressional Increases			
Reprogrammings	-2.006		
SBIR/STTR Transfer			
(U) <u>Significant Program Changes:</u>			
FY08: AF transferred \$2M to support higher priority.			

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>				PE NUMBER AND TITLE <b>0305182F Spacelift Range System</b>				PROJECT NUMBER AND TITLE <b>4137 Launch and Test Range System (LTRS) Modernization</b>		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
4137 Launch and Test Range System (LTRS) Modernization	25.089	12.322	9.957	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

The Eastern Range (ER) at Patrick Air Force Base (AFB)/Cape Canaveral Air Force Station, FL, and the Western Range (WR) at Vandenberg AFB, CA, make up the Spacelift Range System (SLRS). They provide tracking, telemetry, communications, flight analysis, and other capabilities to safely conduct: national security, civil, and commercial spacelift operations; ballistic missile and missile defense evaluations; and aeronautical and guided weapons tests. Decreasing reliability of aging range systems adds risk. It forces the AF to use redundant assets during launches to ensure range availability, increasing operations and maintenance costs.

The AF is addressing range deficiencies through two contracts. First, the Range Standardization and Automation (RSA) Phase IIA contract modernizes the control/display and communications segments at both ranges. Systems being modernized include: weather; communications; planning and scheduling; and flight operations and analysis. Second, the SLRS Contract (SLRSC) modernizes command, telemetry, and radar instrumentation at both ranges and supports activation of the WR Operations Control Center. It also provides overall systems engineering and architecture management, and system level testing to complete the modernization effort. Some examples of the most recent deliveries on these two contracts include: automated planning and network management systems; digital telemetry systems; and optical system upgrades. RSA Phase IIA and SLRSC efforts end in FY10. The AF is awarding a separate systems engineering and integration contract in FY09 and a follow-on modernization/product improvement contract in FY10.

These upgrades to fielded systems are categorized as Budget Activity 7, Operational Systems Development.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Completed RSA Phase IIA development, test, and evaluation of communications; weather; and flight operations/analysis systems in FY08.	13.182		
(U) Complete SLRSC instrumentation modernization. Complete development, test, and evaluation of command destruct, telemetry, and radar instrumentation and local control interfaces. Finish activation of WR Operations Control Center.	11.407	11.576	7.057
(U) Initiate follow on contract in FY10 to transition/continue modernization/product improvement of instrumentation, control/display, and communications systems.			0.500
(U) Continue separate systems engineering and integration (SE&I) contract initiated in FY09. Continues SE&I efforts previously accomplished under RSA Phase IIA and SLRSC. Provides separate SE&I to support completion of SLRSC and transition to follow-on modernization/product improvement contract.		0.200	2.000
(U) Provide program support, to include System Program Office operations, SETA, and FFRDC.	0.500	0.546	0.400
(U) Total Cost	25.089	12.322	9.957

Exhibit R-2a, RDT&E Project Justification

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305182F Spacelift Range System

PROJECT NUMBER AND TITLE

4137 Launch and Test Range System (LTRS) Modernization

(U) **C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) OPAF ( Spacelift Range System Space, P-65, BA 03)	130.536	101.303	102.645						Continuing	TBD
(U) OPAF (Spares and Repair Parts, P-103, BA 05)	2.912	2.948	2.957						Continuing	TBD

(U) **D. Acquisition Strategy**

The AF is using two competitively awarded, complementary contracts, managed by the Space and Missile Systems Center, to modernize the ranges on a minimal-interference basis as they continue to support operational launches and tests. The AF will competitively award a new systems engineering and integration contract in FY09 and a follow-on modernization/improvement contract in FY10 to continue modernization and improvement efforts.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>07 Operational System Development</b>				<b>0305182F Spacelift Range System</b>					<b>4137 Launch and Test Range System (LTRS) Modernization</b>			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> RSA Phase IIA	C/CPAF	Lockheed Martin, Santa Maria, CA	322.522	13.182	Oct-07					0.000	335.704	349.469
SLRSC	C/CPAF	ITT Industries, Cape Canaveral, FL	144.901	11.407	Oct-07	11.576	Oct-08	7.057	Oct-09	Continuing	TBD	TBD
Follow-on modernization/product improvement contract	C/CPIF	TBD						0.500	Aug-10	Continuing	TBD	TBD
Separate systems engineering and integration contract	C/CPIF	TBD				0.200	May-09	2.000	Oct-09	Continuing	TBD	TBD
Subtotal Product Development			467.423	24.589		11.776		9.557		Continuing	TBD	TBD
Remarks:												
(U) <u>Support</u> SPO Program Support (FFRDC, SETA, SPO Ops)	Various	Various	35.871	0.500	Oct-07	0.546	Oct-08	0.400	Oct-09	Continuing	TBD	TBD
California Space Infrastructure Program	Various	Various	34.353							Continuing	TBD	TBD
Subtotal Support			70.224	0.500		0.546		0.400		Continuing	TBD	TBD
Remarks:												
(U) Total Cost			537.647	25.089		12.322		9.957		Continuing	TBD	TBD



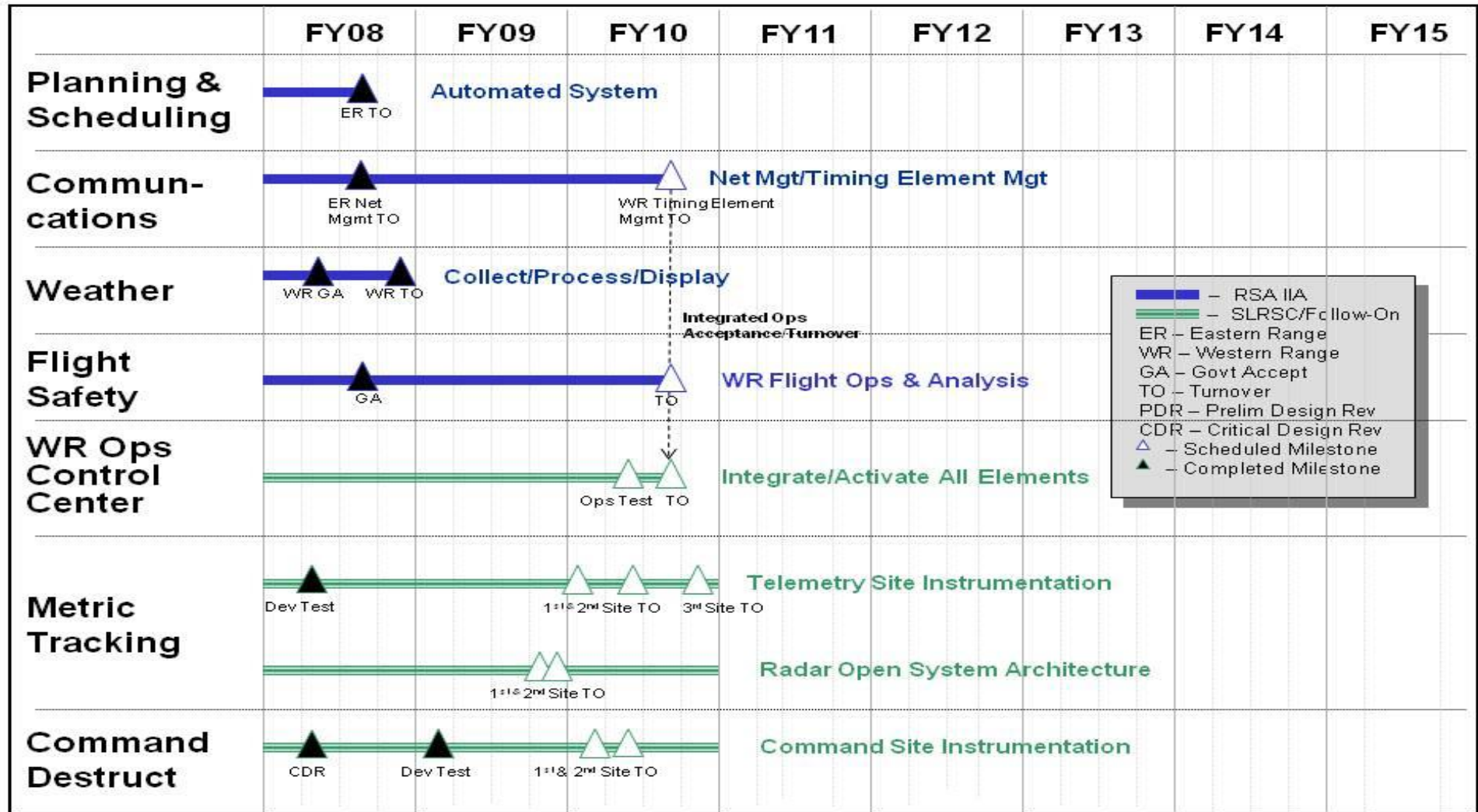
Exhibit R-4, RDT&E Schedule Profile

DATE  
May 2009

BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0305182F Spacelift Range System

PROJECT NUMBER AND TITLE  
4137 Launch and Test Range System (LTRS) Modernization



UNCLASSIFIED

<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0305182F Spacelift Range System</b>	<b>PROJECT NUMBER AND TITLE</b> <b>4137 Launch and Test Range System (LTRS) Modernization</b>
--	--	--

<b>(U) <u>Schedule Profile</u></b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) RSA Phase IIA			
(U) - Planning & Scheduling ER Operational (Ops) Turnover	3Q		
(U) - Communications (Net Mgmt System) ER Final Ops Turnover	3Q		
(U) - Communications (Timing Element Mgmt System) WR Final Ops Turnover			3Q
(U) - Weather WR Final Govt Acceptance	2Q		
(U) - Weather WR Final Ops Turnover	4Q		
(U) - Flight Safety (WR Flight Ops & Analysis) Govt Acceptance	3Q		
(U) - Flight Safety (WR Flight Ops & Analysis) Ops Turnover			3Q
(U) SLRS Contract/Follow-On Contract			
(U) - WR Ops Control Center (WROCC) Operational Test Complete			2Q
(U) - WR Ops Control Center (WROCC) Final Turnover			3Q
(U) - Metric Tracking (Telemetry) Developmental Test Complete	2Q		
(U) - Metric Tracking (Telemetry) 1st Site Turnover			1Q
(U) - Metric Tracking (Telemetry) 2nd Site Turnover			2Q
(U) - Metric Tracking (Telemetry) 3rd Site Turnover			4Q
(U) - Metric Tracking (Radar Open System Architecture) 1st Site Turnover		4Q	
(U) - Metric Tracking (Radar Open System Architecture) 2nd Site Turnover		4Q	
(U) - Command Destruct (Vehicle Uplink) Critical Design Review	2Q		
(U) - Command Destruct (Vehicle Uplink) Developmental Test Complete		1Q	
(U) - Command Destruct (Vehicle Uplink) 1st Site Turnover			1Q
(U) - Command Destruct (Vehicle Uplink) 2nd Site Turnover			2Q

**UNCLASSIFIED**

PE NUMBER: 0305193F  
 PE TITLE: INTEL SPT TO INFO OPS

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>May 2009</b>
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BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0305193F INTEL SPT TO INFO OPS</b>
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	8.312	3.627	1.240	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
4871 Information Operations Technology	8.312	3.627	1.240	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

**(U) A. Mission Description and Budget Item Justification**

This program element supports, but is not limited to intelligence activities focused on the development, integration and assessment of systems or applications in support of non-traditional and contingency warfare. This program will also develop network-centric collaborative techniques to improve situation awareness and operational-intelligence planning efforts.

Funds the Joint Task Force - Global Network Operations (JTF-GNO) Threat Incident Database (JTID) development. JTID fuses network incident and intelligence data analyzed within the context of operationally relevant information from affected commands; develops appropriate response options and detailed courses-of-action in defense of protected networks; catalogs foreign Computer Network Operations (CNO) specific intrusion threat information to DoD's command and control infrastructure in near real-time to include intentions and capabilities. JTID is interoperable with law enforcement and allied communities of interest.

This program is funded under BA-7, Operational Systems Development, because it supports intelligence efforts that involve engineering development.

**(U) B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	5.927	1.257	1.261
(U) Current PBR/President's Budget	8.312	3.627	1.240
(U) Total Adjustments	2.385	2.370	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.010	
Congressional Increases	2.385	2.380	
Reprogrammings			
SBIR/STTR Transfer			

**(U) Significant Program Changes:**

Congress added \$7.718M in FY08 and \$2.380M in FY09 for a classified program.

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>					PE NUMBER AND TITLE <b>0305193F INTEL SPT TO INFO OPS</b>			PROJECT NUMBER AND TITLE <b>4871 Information Operations Technology</b>		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
4871 Information Operations Technology	8.312	3.627	1.240	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

Congress added \$7.718M in FY08 and \$2.390M in FY09 for a classified program.

**(U) A. Mission Description and Budget Item Justification**

This program element supports, but is not limited to intelligence activities focused on the development, integration and assessment of systems or applications in support of non-traditional and contingency warfare. This program will also develop network-centric collaborative techniques to improve situation awareness and operational-intelligence planning efforts.

Funds the Joint Task Force - Global Network Operations (JTF-GNO) Threat Incident Database (JTID) development. JTID fuses network incident and intelligence data analyzed within the context of operationally relevant information from affected commands; develops appropriate response options and detailed courses-of-action in defense of protected networks; catalogs foreign Computer Network Operations (CNO) specific intrusion threat information to DoD's command and control infrastructure in near real-time to include intentions and capabilities. JTID is interoperable with law enforcement and allied communities of interest.

This program is funded under BA-7, Operational Systems Development, because it supports intelligence efforts that involve engineering development.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Continue modifications to near real-time database that contains foreign CNO specific threat information to DoD's command and control infrastructure, to include intentions and capabilities. Continue development of tools for production of automated intelligence reports on computer network attacks against US systems in accordance with CJCSM 6510.03. Continue to develop better incident assessments and analysis modules to improve means of supplying appropriate response options and courses-of-action in defense of DoD networks. Activities also include studies and analysis to support both current program planning and execution and future program planning.	1.134	1.247	1.240
(U) Congressional Add - Classified Program	7.178	2.380	
(U) Total Cost	8.312	3.627	1.240

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) N/A										

**(U) D. Acquisition Strategy**

The JTID program is executing an incremental improvement of JTID capabilities. Systems engineering, development and initial testing will be accomplished under a full and open competition, Time & Materials (T&M) contract.

UNCLASSIFIED

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>07 Operational System Development</b>				<b>0305193F INTEL SPT TO INFO OPS</b>					<b>4871 Information Operations Technology</b>			
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> JTID GNO Analyses	T&M	Northrop Grumman IT-TASC, Lorton VA	1.290	1.134	Dec-07	1.247	Dec-08	1.240	Dec-09	Continuing	TBD	TBD
Subtotal Product Development			1.290	1.134		1.247		1.240		Continuing	TBD	TBD
Remarks:												
(U) <u>Support</u> Classified Program	Classified	Classified	0.000	7.178	Jul-08	2.380	Dec-08				9.558	TBD
Subtotal Support			0.000	7.178		2.380		0.000		0.000	9.558	TBD
Remarks:												
(U) <u>Test &amp; Evaluation</u> Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	TBD
Remarks:												
(U) <u>Management</u> Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	TBD
Remarks:												
(U) Total Cost			1.290	8.312		3.627		1.240		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE  
May 2009

BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0305193F INTEL SPT TO INFO OPS

PROJECT NUMBER AND TITLE  
4871 Information Operations Technology

UNCLASSIFIED

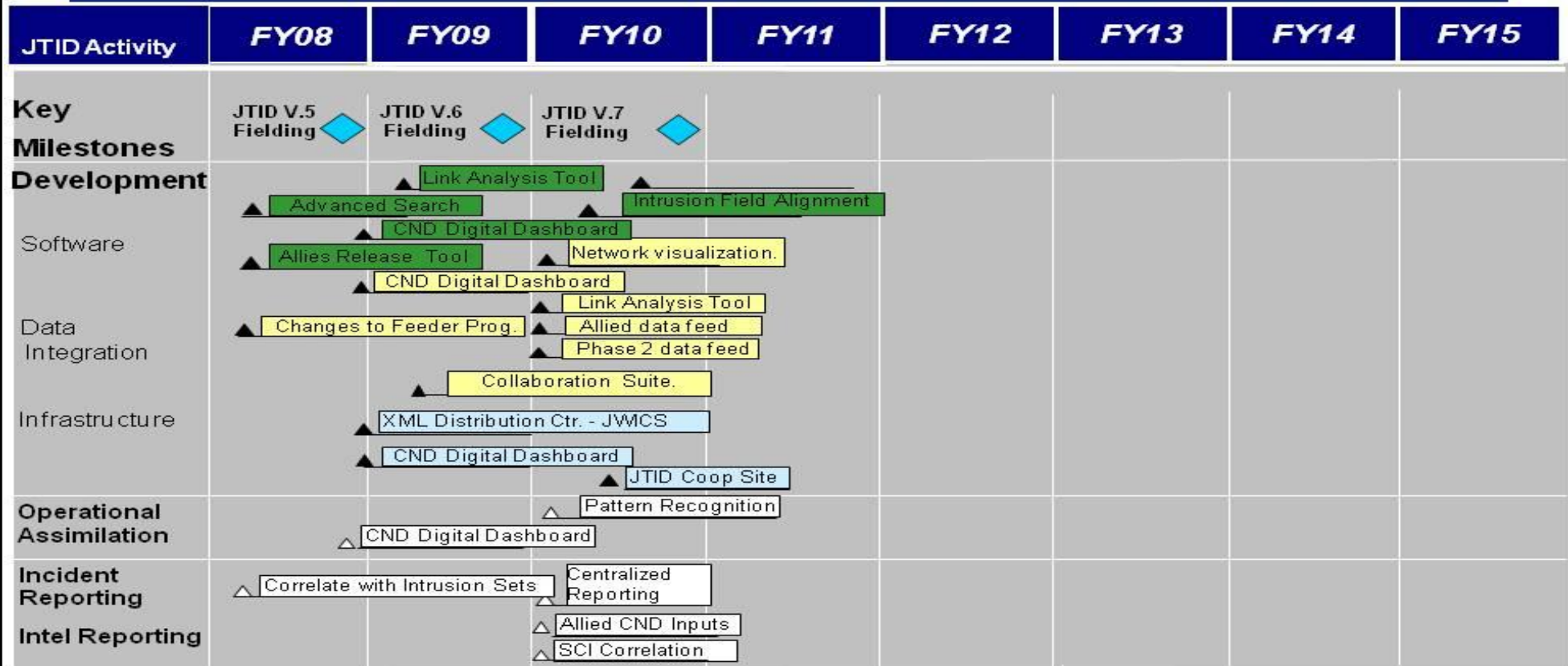
Exhibit R-4, RDT&E Program Schedule Profile

Date: August 2008

Appropriation/Budget Activity

PE 35193F

Project Name: JTID



Software   
Data Integration 

UNCLASSIFIED

Ops Impact   
Infrastructure 

UNCLASSIFIED

<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>May 2009</b>
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BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0305193F INTEL SPT TO INFO OPS</b>	PROJECT NUMBER AND TITLE <b>4871 Information Operations Technology</b>
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	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) <b><u>Schedule Profile</u></b>			
(U) Fielding of V.5	4Q		
(U) Fielding of V.6		4Q	
(U) Fielding of V.7			4Q

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0305202F Dragon U-2 (JMIP)</b>
--	---

Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.608	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	TBD
4820 Sensor Development	0.608	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	TBD

\*FY08 funding total includes \$0.608M in supplemental funding. Time critical operational requirement dictated reprioritization of other program funds to complete effort. As a result, this funding will not be executed.

(U) **A. Mission Description and Budget Item Justification**  
 The RDT&E portion of this program element funds efforts to develop enhancements and sustain the U-2 Dragon Lady ISR system. In addition to on-going RDT&E activity, there are procurement and modification funds to support sustainability efforts. This program element will participate in the development, testing, and implementation of international standards (to include NATO standardization agreements) to pursue joint, allied, and coalition interoperability. Budget Activity Justification - This program element is categorized as Budget Activity 7 because it provides for development of technologies and capabilities in support of operational system development for the U-2 aircraft and related Intelligence Surveillance Reconnaissance (ISR) subsystems.

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	0.000	0.000	0.000
(U) Current PBR/President's Budget	0.608	0.000	0.000
(U) Total Adjustments	0.608	0.000	
(U) Congressional Program Reductions			
Congressional Rescissions			
Congressional Increases	0.608		
Reprogrammings			
SBIR/STTR Transfer			

(U) **Significant Program Changes:**  
 In FY08, \$0.608M was added as a GWOT supplemental for SYERS SIL and Flight Test

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>					PE NUMBER AND TITLE <b>0305202F Dragon U-2 (JMIP)</b>			PROJECT NUMBER AND TITLE <b>4820 Sensor Development</b>		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
4820 Sensor Development	0.608	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

\*FY08 funding total includes \$0.608M in supplemental funding. Time critical operational requirement dictated reprioritization of other program funds to complete effort. As a result, this funding will not be executed.

**(U) A. Mission Description and Budget Item Justification**

The RDT&E portion of this program element funds efforts to develop enhancements and sustain the U-2 Dragon Lady ISR system. In addition to on-going RDT&E activity, there are procurement and modification funds to support sustainability efforts. This program element will participate in the development, testing, and implementation of international standards (to include NATO standardization agreements) to pursue joint, allied, and coalition interoperability.

Budget Activity Justification - This program element is categorized as Budget Activity 7 because it provides for development of technologies and capabilities in support of operational system development for the U-2 aircraft and related Intelligence Surveillance Reconnaissance (ISR) subsystems.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) System Integration and Test	0.608		
(U) Total Cost	0.608	0.000	0.000

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	

(U)

**(U) D. Acquisition Strategy**

The SYERS-2 upgrade will be procured via sole source to Goodrich Corporation

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>07 Operational System Development</b>				<b>0305202F Dragon U-2 (JMIP)</b>					<b>4820 Sensor Development</b>			
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
Subtotal Product Development			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
SYERS-2A Integration and Flight Test	SS/CPFF	TBD		0.608	Jan-09			0.000		0.000	0.608	0.608
Subtotal Test & Evaluation			0.000	0.608		0.000		0.000		0.000	0.608	0.608
Remarks:												
(U) <u>Management</u>												
RSW/U2SF	C/FFP	Various									0.000	
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			0.000	0.608		0.000		0.000		0.000	0.608	0.608

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0305202F Dragon U-2 (JMIP)

PROJECT NUMBER AND TITLE  
4820 Sensor Development



U-2

	FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY15
SYERS-2 Integration/Test	<i>Time now</i>							

- Concept activities
- Integration / test
- Production / fielding
- Design / development
- Pre-Production
- Key events

**PB10 R-Docs**

1

Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305202F Dragon U-2 (JMIP)

PROJECT NUMBER AND TITLE

4820 Sensor Development

(U) Schedule Profile

FY 2008

FY 2009

FY 2010

(U) SYERS SIL Integration and Flight Test

2-4Q

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**UNCLASSIFIED**

PE NUMBER: 0305205F  
 PE TITLE: Endurance Unmanned Aerial Vehicles

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0305205F Endurance Unmanned Aerial Vehicles</b>
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.000	0.000	73.736	0.000	0.000	0.000	0.000	0.000	0.000	200.000
5372 Integrated Sensor IS Structure	0.000	0.000	73.736	0.000	0.000	0.000	0.000	0.000	0.000	200.000

In FY 2010, Project 5372, Integrated Sensor Is Structure, includes new start efforts.

**(U) A. Mission Description and Budget Item Justification**

This PE will focus USAF efforts on long endurance UAVs. Efforts can include airships and more standard aircraft structures. The USAF plan is to develop technologies which will allow days of endurance as well as their associated sensors and communications suites.

The Integrated Sensor Is Structure (ISIS) Program is developing a radar of unprecedented proportions that is fully integrated into a station-keeping stratospheric airship. The ISIS will support the nation's need for persistent wide-area surveillance, tracking, and engagement of all time-critical air and ground targets. Automated surveillance and tracking includes all air targets to the radar horizon of 600 km and all ground targets to a range of 300 km. The radar aperture also provides track data and other communications directly to users in-theater. The system is expected to be launched from CONUS locations with a multi-year operational life. No support personnel or facilities are required in-theater. Efforts will include work on the ground station and the corresponding Processing, Exploitation, and Dissemination (PED) connectivity.

Funds in any Project can also cover activities to include studies and analysis to support both current program planning and execution and future program planning.

This program is categorized as Budget Activity 7 because it provides for development of technologies and capabilities in support of operational system development.

**(U) B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget			
(U) Current PBR/President's Budget	0.000	0.000	73.736
(U) Total Adjustments	0.000	0.000	
(U) Congressional Program Reductions			
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer			

**(U) Significant Program Changes:**

This program is currently being developed by DARPA. USAF will cost share development beginning in FY 10 with Program transition from DARPA to the USAF following flight test in FY12.

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>						PE NUMBER AND TITLE <b>0305205F Endurance Unmanned Aerial Vehicles</b>		PROJECT NUMBER AND TITLE <b>5372 Integrated Sensor IS Structure</b>		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5372 Integrated Sensor IS Structure	0.000	0.000	73.736	0.000	0.000	0.000	0.000	0.000	0.000	200.000
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

In FY 2010, Project 5372, Integrated Sensor Is Structure, includes new start efforts.

**(U) A. Mission Description and Budget Item Justification**

This PE will focus USAF efforts on long endurance UAVs. Efforts can include airships and more standard aircraft structures. The USAF plan is to develop technologies which will allow days of endurance as well as their associated sensors and communications suites.

The Integrated Sensor Is Structure (ISIS) Program is developing a radar of unprecedented proportions that is fully integrated into a station-keeping stratospheric airship. The ISIS will support the nation's need for persistent wide-area surveillance, tracking, and engagement of all time-critical air and ground targets. Automated surveillance and tracking includes all air targets to the radar horizon of 600 km and all ground targets to a range of 300 km. The radar aperture also provides track data and other communications directly to users in-theater. The system is expected to be launched from CONUS locations with a multi-year operational life. No support personnel or facilities are required in-theater. Efforts will include work on the ground station and the corresponding Processing, Exploitation, and Dissemination (PED) connectivity.

Funds in any Project can also cover activities to include studies and analysis to support both current program planning and execution and future program planning.

This program is categorized as Budget Activity 7 because it provides for development of technologies and capabilities in support of operational system development.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Program development and transition from DARPA			73.736
(U)			
(U)			
(U) Total Cost	0.000	0.000	73.736

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to Complete</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>		
(U) RDT&E DARPA, PE 0603287E	62.900	100.000								162.900
(U) RDT&E DARPA, PE 0603286E			60.000							60.000

Note FY 08 includes FY04-FY08 which had RDT&E DARPA funds in PEs 0603762E, 0603767E, and 0603287E



## Exhibit R-2a, RDT&amp;E Project Justification

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305205F Endurance Unmanned  
Aerial Vehicles

PROJECT NUMBER AND TITLE

5372 Integrated Sensor IS Structure

(U) **D. Acquisition Strategy**

The funding for the ISIS AF/DARPA effort will further efforts already underway by DARPA towards the flight demo of the technology. These efforts include work on the actual skin development and testing of the hull material, radar design/development (s/w, electronics, etc), propulsion and power systems, design of the ground station, antenna design/production calibration systems, and integration of the radar into the hull structure. Acquisition strategy varies by contract. When possible, contracts are awarded under full and open competition.

UNCLASSIFIED

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>07 Operational System Development</b>				<b>0305205F Endurance Unmanned Aerial Vehicles</b>					<b>5372 Integrated Sensor IS Structure</b>			
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
Prototype Development	MIPR	DARPA						73.736	Dec-09	55.000	128.736	TBD
Subtotal Product Development			0.000	0.000		0.000		73.736		55.000	128.736	TBD
Remarks:												
(U) <u>Support</u>											0.000	
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>											0.000	
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Management</u>											0.000	
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			0.000	0.000		0.000		73.736		55.000	128.736	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE  
May 2009

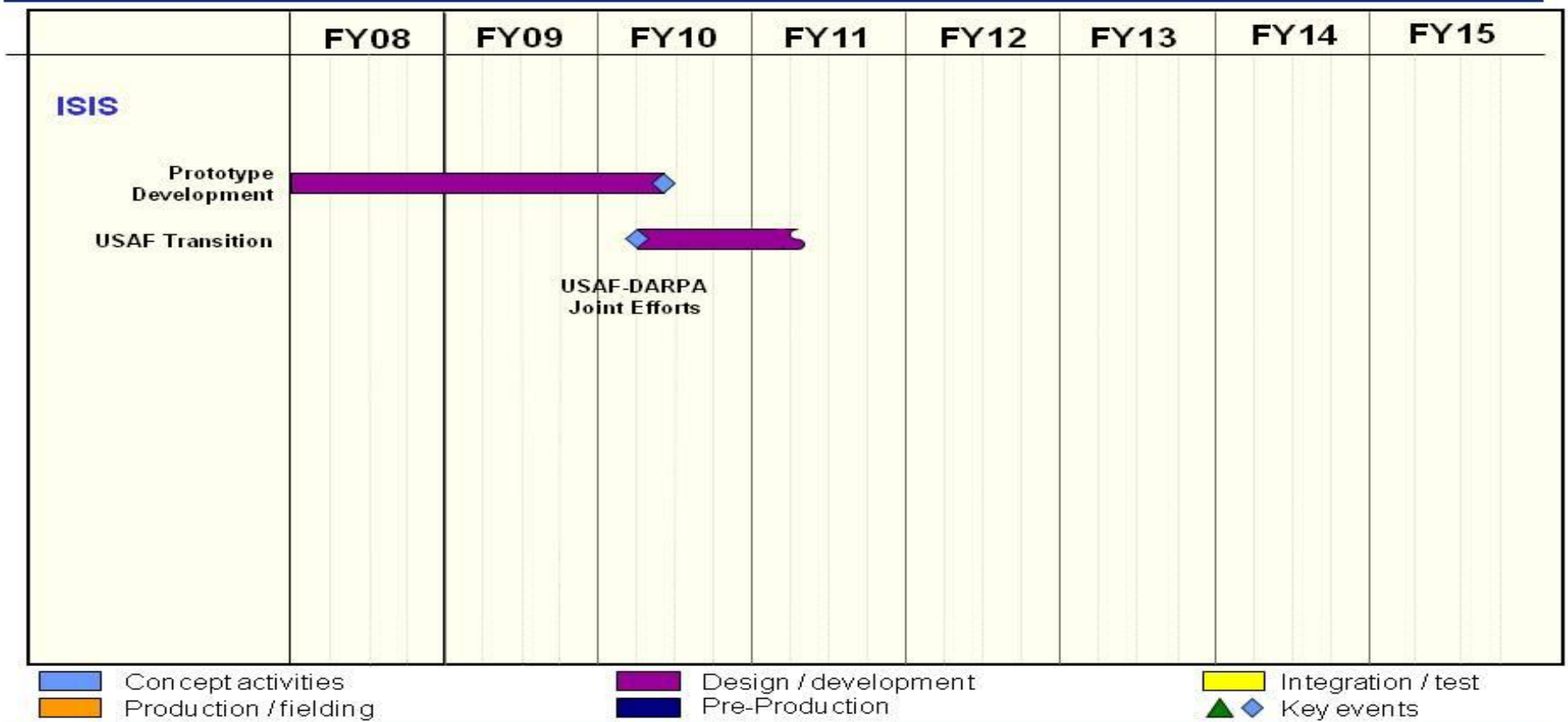
BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0305205F Endurance Unmanned  
Aerial Vehicles

PROJECT NUMBER AND TITLE  
5372 Integrated Sensor IS Structure



# Integrated Sensor Is Structure (ISIS) Endurance UAV PE



PB10 R-Docs

<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>May 2009</b>
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BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0305205F Endurance Unmanned Aerial Vehicles</b>	PROJECT NUMBER AND TITLE <b>5372 Integrated Sensor IS Structure</b>
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(U) <u>Schedule Profile</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Program Transition			2Q

**UNCLASSIFIED**

PE NUMBER: 0305206F  
 PE TITLE: Airborne Reconnaissance Systems

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0305206F Airborne Reconnaissance Systems</b>
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	111.842	103.870	143.892	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
4818 Imaging and Targeting Support	74.175	20.742	51.035	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
4819 Common Data Link (CDL)	35.922	37.475	37.773	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5092 JTC/SIL MUSE	1.745	1.653	3.470	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5291 Wide Area Airborne Surveillance (WAAS)	0.000	34.000	46.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5292 Airborne Cueing & Exploitation Sys-Hyperspectral(ACES HY)	0.000	10.000	5.614	0.000	0.000	0.000	0.000	0.000	0.000	0.000

FY2008 funding total includes \$1.401M in supplemental funding.

**(U) A. Mission Description and Budget Item Justification**

The Airborne Reconnaissance Systems program coordinates the development of advanced airborne reconnaissance system technologies (sensors, data links, targeting networks and products, and quick reaction capabilities) in support of multiple airborne reconnaissance platforms, both manned and unmanned. Its objective is to develop, demonstrate, and rapidly transition advanced, interoperable, multi-platform solutions to reduce the find, fix, target, and track kill chain timeline. This program also coordinates the development of common collection, processing, and dissemination solutions for near-real time intelligence, surveillance, and reconnaissance (ISR).

This program is categorized as Budget Activity 7 because it provides for development of technologies and capabilities in support of operational system development.

Funds in any project can also cover activities to include studies and analysis to support both current program planning and execution and future program planning.

**(U) B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	65.842	149.752	229.970
(U) Current PBR/President's Budget	111.842	103.870	143.892
(U) Total Adjustments	46.000	-45.882	
(U) Congressional Program Reductions		-50.000	
Congressional Rescissions		-0.282	
Congressional Increases		4.400	
Reprogrammings	46.000		
SBIR/STTR Transfer			
(U) <u>Significant Program Changes:</u>			

Exhibit R-2, RDT&E Budget Item Justification

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305206F Airborne Reconnaissance Systems

FY2008 funding total includes \$1.401M in supplemental funding. Funding added for GORGON STARE (Formerly WAAS) (FY09-15). FY08 Funding for GORGON STARE was under the I&TS project. Funding reduced to terminate Blackswift (FY09-12).

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

May 2009

BUDGET ACTIVITY <b>07 Operational System Development</b>				PE NUMBER AND TITLE <b>0305206F Airborne Reconnaissance Systems</b>				PROJECT NUMBER AND TITLE <b>4818 Imaging and Targeting Support</b>		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
4818 Imaging and Targeting Support	74.175	20.742	51.035	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

FY2008 funding total includes \$1.401M in supplemental funding.

(U) **A. Mission Description and Budget Item Justification**

The purpose of the Imaging and Targeting Support (I&TS) program is to develop and demonstrate next-generation, persistent, wide area surveillance and common imagery reconnaissance sensor capabilities (radar and electro-optical systems) for multiple airborne platforms, and sensor products to aid in rapid targeting (geolocation models, sensor-based exploitation tools, sensor networking capabilities). Developmental efforts pursued are improved sensor capabilities (such as hyperspectral imagery [HSI], measurement and signature intelligence [MASINT], polarimetric imaging, ground moving target indication, foliage penetration, and other radar and electro-optical modes), increased geolocation accuracy, advanced sensor data correlation, automated target detection, network centric warfare, and other Intelligence, Surveillance, and Reconnaissance (ISR) and associated Tasking Processing Exploitation and Dissemination (TPED) capabilities to reduce both target search and kill chain timelines; as well as, supporting traditional intelligence activities. I&TS will increase interoperability among developed systems by developing common standards and tools. I&TS focuses on the following areas:

Development and integration of common radar and electro-optical sensors (Synthetic Aperture Radar [SAR], Low Frequency SAR, and antennas, Electro-Optical [EO], Infrared [IR], HSI, Low Light, Laser Radar [LADAR]) and their operational modes (High Resolution Imagery, Moving Target Indication, Persistent Surveillance, Wide Area Surveillance, Spectral Identification) for multiple airborne platforms.

Development and demonstration of advanced airborne tactical sensor and associated TPED processing algorithms and tools (automatic registration, automatic and assisted target detection, network centric warfare). Development of integrated multi-sensor capabilities to detect and identify obscured targets (OT). Development and implementation of imagery standards (Common Ground Moving Target Indicator (GMTI), National Imagery Transmission Format (NITF)). These efforts focus on reducing the find, fix and track elements of the time critical targeting kill-chain timeline while improving operator and decision-maker efficiency and effectiveness.

Enhancement of Imagery Intelligence (IMINT) product quality. Monitoring and enhancement of IMINT product quality (radar and EO/IR imagery, GMTI data, and spectral information) and timeliness throughout the image chain (from sensor to user).

ACES HY moved to new BPAC 675292 starting in FY09.

GORGON STARE (formerly WAAS) moved to new BPAC 675291 starting in FY09.

New Wide Area Surveillance Program of Record adds \$38.705 RDT&E in FY10.

Activities also include studies and analysis to support both current program planning and execution and future program planning.

This program is categorized as Budget Activity 7 because it provides for development of technologies and capabilities in support of operational system development.

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0305206F Airborne Reconnaissance Systems</b>	<b>PROJECT NUMBER AND TITLE</b> <b>4818 Imaging and Targeting Support</b>
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<b>(U) B. Accomplishments/Planned Program (\$ in Millions)</b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Continue efforts to transition HSI technology, such as the Spectral Infrared Imaging Technology Transition Testbed (SPIRITT) sensor and the Hyperspectral Collection and Analysis System (HyCAS) into airborne reconnaissance platforms.	8.392	8.183	6.000
(U) Develop Obscured Target (OT) sensor capabilities (e.g. foliage penetration synthetic aperture radar (FOPEN SAR) and target identification (ID) laser radar (LADAR)).	6.140	5.280	2.800
(U) Continue Obscured Target Roadmap Development	0.130	0.271	0.300
(U) Develop automatic and assisted target detection algorithms and tools.	0.045	0.520	1.000
(U) Develop passive low light level sensors for OT detection (e.g., Nocturnal Camera (NCAM)).	0.000	0.280	0.300
(U) Procure three ACES HY Sensors, integrate onto the MQ-1 Predator UAS, and provide training and support for these systems.	10.922		
(U) Initiate development of wide area airborne surveillance (sensors, platforms, and associated TPED) capability, using manned and unmanned testbeds.	46.000		
(U) Project Anubis small UAS	0.479		
(U) Multiple UAS Cooperative Observation and Engagement		4.400	
(U) Wide Area Surveillance Program of Record			38.705
(U) Mission Support	2.067	1.808	1.930
(U) Total Cost	74.175	20.742	51.035

<b>(U) C. Other Program Funding Summary (\$ in Millions)</b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) AF RDT & E (PE 63203F, AFRL)	1.500	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.500
- Air Force Research Lab is contributing to SPIRITT HSI sensor development, including a longwave infrared (LWIR) hyperspectral channel.										

**(U) D. Acquisition Strategy**  
 Acquisition strategy is to maximize commercial and national development efforts and investment through multiple contracting methods; including the use of Engineering Change Proposals (ECP) to modify existing contracts and new contracts that were awarded both competitively or on a sole source basis.



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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0305206F Airborne Reconnaissance Systems</b>	<b>PROJECT NUMBER AND TITLE</b> <b>4818 Imaging and Targeting Support</b>
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(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
BAE Systems (SPIRITT)	C/CPFF	Greenlawn, NY	30.473	6.530	Jan-08	8.183	Jan-09	4.890	Jan-10	Continuing	TBD	TBD
Essex Corp (OT-SAR)	Phase III SBIR	Columbia, MD	3.104	4.420	Feb-08	4.130	Jan-09	1.950	Jan-10	Continuing	TBD	TBD
Georgia Tech Research Institute (GTRI)	SS/CPFF	Dayton, OH	0.671	0.250	Jan-08	0.271	Jan-09	0.260	Jan-10	Continuing	TBD	TBD
Lockheed Martin ADP (SPIRITT)	SS/CPFF	Palmdale, CA	0.925	1.500	Jul-08	0.250	Jan-09	0.000			2.675	1.750
Sierra Nevada (WAAS)			0.000	46.000	Aug-08					Continuing	TBD	TBD
Raytheon (ACES HY)			0.000	10.922	Mar-08					Continuing	TBD	TBD
Proxy Aviation (Multiple UAS Cooperation)						4.400	Mar-09				4.400	
Wide Area Surveillance Program of Record								38.705	Jan-10	Continuing	TBD	TBD
Others	Various	Various	0.000	2.486	Mar-08	1.524	Mar-09	3.300	Jan-10	Continuing	TBD	TBD
Subtotal Product Development			35.173	72.108		18.758		49.105		Continuing	TBD	TBD
Remarks:												
(U) <u>Support</u>											0.000	
Subtotal Support			0.000	0.000		0.000		0.000			0.000	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>											0.000	
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000			0.000	0.000
Remarks:												
(U) <u>Management</u>												
ASC (ITS)	Various	Wright Patterson, AFB	0.000	2.067	Oct-07	1.984	Oct-08	1.930	Oct-09	Continuing	TBD	TBD
Subtotal Management			0.000	2.067		1.984		1.930		Continuing	TBD	TBD
Remarks:												
(U) Total Cost			35.173	74.175		20.742		51.035		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0305206F Airborne Reconnaissance Systems

PROJECT NUMBER AND TITLE  
4818 Imaging and Targeting Support

# Imaging & Targeting Support

Capability Area	FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY15
FOPEN SAR for OT Detect	Demonstrate OBP on SH		Feature Extraction Dev PED					
HSI for OT Detect/C-CBRNE	SPIRITT LWIR Dev	3-Channel SPIRITT With LWIR	5-Channel SPIRITT With LWIR					
Wide Area Surveillance Program of Record			Req/Sys Dev					
Obscured Targets ID Capability	RAIDER LADAR (Clean Sweep) N-CAM	1 <sup>st</sup> FH	Data Collect	Ready For Shadow Harvest Integration				
Assisted Target Recognition/ Assisted Target Cueing	ATR/ATC	AFRL/RV Clean Sweep Program	Reqments/Systems Engring	Algorithm Development	Context Classification Algorithm	Target ID Demonstration		

- Funded by AFRL
- Funded by I&TS

HSI: Hyperspectral Imaging      SPIRITT: Spectral Infrared Remote Imaging Transition Testbed  
 FOPEN: Foliage Penetration

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**Exhibit R-4a, RDT&E Schedule Detail**

DATE

**May 2009**

BUDGET ACTIVITY

**07 Operational System Development**

PE NUMBER AND TITLE

**0305206F Airborne Reconnaissance  
Systems**

PROJECT NUMBER AND TITLE

**4818 Imaging and Targeting Support**

(U) **Schedule Profile**

(U) FOPEN SAR Development

(U) HSI/SPIRITT Development

(U) Obscured Targets ID Capability

(U) Assisted Target Recognition/Cueing

(U) Wide Area Surveillance Program of Record

FY 2008

1-4Q

1-4Q

1-4Q

1-4Q

FY 2009

1-4Q

1-4Q

1-4Q

1-4Q

FY 2010

1-4Q

1-4Q

1-4Q

1-4Q

2-4Q

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>					PE NUMBER AND TITLE <b>0305206F Airborne Reconnaissance Systems</b>			PROJECT NUMBER AND TITLE <b>4819 Common Data Link (CDL)</b>		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
4819 Common Data Link (CDL)	35.922	37.475	37.773	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

Common Data Link (CDL) provides an interoperable joint command, control, and communications capability for manned/unmanned Intelligence, Surveillance, and Reconnaissance (ISR) assets. As the CDL Executive Agent (EA), the Air Force oversees acquisition of developmental data-link terminals and update/maintenance of the CDL specification. CDL Military Intelligence Program (MIP) funds are used to ensure design configuration, commonality, and interoperability, including testing, among the service's ISR platforms. Updates to the CDL specification and developmental systems impact approximately 500 DoD airborne and ground ISR systems with CDL capabilities. The CDL program is also focused on complying with OSD mandates for Software Communications Architecture (SCA) waveform development, Internet Protocol Version 6 (IPv6), and software re-programmable cryptographic (COMSEC) equipment.

The CDL design permits existing and future reconnaissance assets to operate worldwide, providing sensor data directly via point-to-point or point-to-multipoint broadcast to ground sites and airborne platforms. It also provides the capability to relay data via air-to-air or satellite links when the asset and ground site are not within line-of-sight. CDL provides bandwidth to accommodate numerous sensors collecting Signals Intelligence (SIGINT) and Imagery Intelligence (IMINT) (including video) data.

Concept, technology, and developmental efforts support continuous improvements and implementation of line-of-sight and network Command and Control, Intelligence, Surveillance, and Reconnaissance (C2ISR) capabilities. CDL's modular design provides for future technology insertion and reduces non-recurring engineering and life-cycle costs to the user. (Note: the term A-series refers to full data rate/network capable CDL systems and T-Series refers to less capable, lower data rate CDL systems.)

Activities also include studies and analysis to support both current program planning and execution and future program planning.

This program is categorized as Budget Activity 07 because it provides for development of technologies and capabilities in support of operational system development.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Continued evolutionary development of T-Series CDL terminals (e.g. Team Portable, Mini CDL, and Joint Tactical Edge Network) for use on C2ISR platforms (e.g. Guardrail Legacy Replacement, Airborne Reconnaissance Low, P-3, Predator, Reaper, other tactical and small UAVs) and man portable systems.	9.566	9.902	11.920
(U) Continued development of A-Series terminals and waveforms (e.g. R-CDL, MR-TCDL and SCA/IPv6 compliant waveforms) for integration into ISR platforms and programs such as ACS, Apache, DCGS-A and Objective Gateway.	14.781	16.544	11.436
(U) Continued configuration control of CDL architecture, standards, specification, and modules.	2.247	2.448	2.631
(U) Continued development of COMSEC replacement and transition to development of software reprogrammable	0.000	0.110	0.118

**Exhibit R-2a, RDT&E Project Justification**

DATE

**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0305206F Airborne Reconnaissance Systems</b>	PROJECT NUMBER AND TITLE <b>4819 Common Data Link (CDL)</b>
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(U) <b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>	FY 2008	FY 2009	FY 2010
COMSEC.			
(U) Continued development of advanced technology insertion activities (to include studies and analysis of future data link requirements and architectures), CDL certification test equipment development, and related joint interoperability certification and spectrum management requirements to include OSD mandates.	7.935	6.441	8.294
(U) CDL technical and engineering support.	1.393	2.030	3.375
(U) Total Cost	35.922	37.475	37.773

(U) <b><u>C. Other Program Funding Summary (\$ in Millions)</u></b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) None										

(U) **D. Acquisition Strategy**  
 The CDL Executive Agent, supported by the 653rd Electronics System Group (ELSG), in concert with other program offices and laboratories, provides for development of common, interoperable wideband ISR data links as mandated by Assistant Secretary of Defense (Networks and Information Integration) (ASD(NII)) policy. Platforms are responsible for CDL procurement, NSA/JITC certifications, integration, and installation. Acquisition strategy varies by contract. When possible contracts are awarded under full and open competition.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0305206F Airborne Reconnaissance Systems</b>	<b>PROJECT NUMBER AND TITLE</b> <b>4819 Common Data Link (CDL)</b>
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<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
<u>(U) Product Development</u>												
L-3 Communications (Mini, MR-TCDL)	C & S; CPAF, CPFF, CPIF	Salt Lake City, UT	175.220	9.004	Jan-08	9.370	Jan-09	6.511	Jan-10	Continuing	TBD	TBD
Rockwell Collins (Mini)				3.796	Jan-08	3.500	May-09	3.211	Jan-10	Continuing	TBD	TBD
Harris Corp (Mini)	C & S; CPFF	Melbourne, FL	4.775								4.775	
SATCOM Interop/Other Govt Orgs	S; MIPR, CPIF	Multiple	8.207			0.300	Jan-09	0.303	Jan-10	Continuing	TBD	
L-3 COMCEPT		Multiple	21.619								21.619	
Centech Group (Radar CDL)	CPFF	Arlington, VA		0.597	Jun-08						0.597	
Centech Group (CDL spec Support Team)	CPFF	Salt Lake City, UT		1.917	Feb-08	2.000	Feb-09	2.100	Jan-10		6.017	
ITT	C; IDIQ	Beavercreek, OH	4.474								4.474	4.500
Cubic (Team Portable)	C, CPFF	San Diego, CA	23.385	3.679	Feb-08	1.900	Apr-09	1.500	Jan-10	Continuing	TBD	TBD
Viasat			1.334			0.000	Apr-09			Continuing	TBD	TBD
Lear Seigler Services (Test Set)		Shrewsbury, NJ		2.898	May-08	3.700	Apr-09	6.000	Jan-10	Continuing	TBD	TBD
Other	S; MIPR, CPFF	Multiple	10.810	0.000		3.873	Jan-09	9.199	Jan-10	Continuing	TBD	TBD
Subtotal Product Development			249.824	21.891		24.643		28.824		Continuing	TBD	TBD
Remarks:												
<u>(U) Support</u>												
Various	C & S; CPFF, MIPR	Multiple	39.117	4.214		3.515	Jan-09	4.879	Jan-10	Continuing	TBD	TBD
Subtotal Support			39.117	4.214		3.515		4.879		Continuing	TBD	TBD
Remarks:												
<u>(U) Test &amp; Evaluation</u>												
JITC	MIPR	Fort Huachuca, AZ	4.632	0.864	Jan-08	0.824	Jan-09	0.848	Jan-10	Continuing	TBD	TBD
Northrop Grumman (MR-T CDL Test)		Herndon, VA		6.434	Jan-08	6.000	Dec-08				12.434	
Subtotal Test & Evaluation			4.632	7.298		6.824		0.848		Continuing	TBD	TBD
Remarks:												
<u>(U) Management</u>												
Various	MIPR	Multiple	12.163	2.519	Jan-08	2.493	Jan-09	3.222	Nov-09	Continuing	TBD	TBD
Subtotal Management			12.163	2.519		2.493		3.222		Continuing	TBD	TBD
Remarks:												

R-1 Line Item No. 203

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Project 4819

Exhibit R-3 (PE 0305206F)

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY

**07 Operational System Development**

PE NUMBER AND TITLE

**0305206F Airborne Reconnaissance Systems**

PROJECT NUMBER AND TITLE

**4819 Common Data Link (CDL)**

(U)

Subtotal	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Remarks:							

(U) Total Cost

305.736	35.922	37.475	37.773	Continuing	TBD	TBD
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Exhibit R-4, RDT&E Schedule Profile

DATE

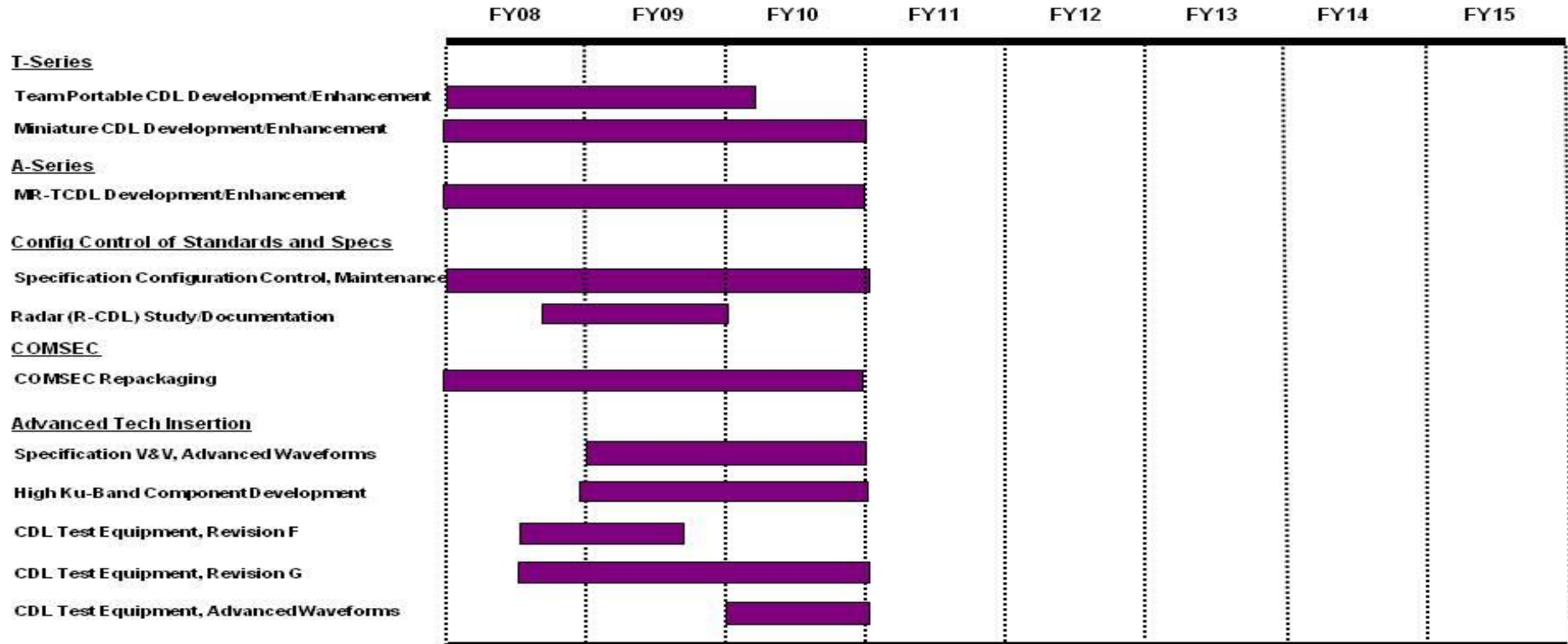
May 2009

BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0305206F Airborne Reconnaissance  
Systems

PROJECT NUMBER AND TITLE  
4819 Common Data Link (CDL)

Common Data Link



As-of 22 Apr 09



UNCLASSIFIED

**Exhibit R-4a, RDT&E Schedule Detail**

DATE

**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0305206F Airborne Reconnaissance Systems</b>	PROJECT NUMBER AND TITLE <b>4819 Common Data Link (CDL)</b>
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(U) <u>Schedule Profile</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Team Portable CDL Development	1-4Q	1-4Q	1Q
(U) Miniature CDL Development	1-4Q	1-4Q	1-4Q
(U) MR-TCDL Development	1-4Q	1-4Q	1-4Q
(U) Configuration Control and Specification Updates	1-4Q	1-4Q	1-4Q
(U) Radar CDL Study	4Q	1-4Q	
(U) COMSEC Repackaging	1-4Q	1-4Q	1-4Q
(U) Specification V&V Advanced Waveforms		1-4Q	1-4Q
(U) High KU-Band Component Development		1-4Q	1-4Q
(U) CDL Test Equipment, Rev F	3-4Q	1-3Q	
(U) CDL Test Equipment Rev G	3-4Q	1-4Q	1-4Q
(U) CDL Test Equipment Advanced Waveforms			1-4Q

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

May 2009

BUDGET ACTIVITY <b>07 Operational System Development</b>				PE NUMBER AND TITLE <b>0305206F Airborne Reconnaissance Systems</b>				PROJECT NUMBER AND TITLE <b>5092 JTC/SIL MUSE</b>			
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total	
5092 JTC/SIL MUSE	1.745	1.653	3.470	0.000	0.000	0.000	0.000	0.000	Continuing	TBD	
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0			

**(U) A. Mission Description and Budget Item Justification**

The Joint Technology Center/Systems Integration Laboratory (JTC/SIL) is a center of technical excellence to support all Unmanned Air Systems (UAS) programs within the services. The mission includes Service-specific and Joint UAS and Intelligence Surveillance Reconnaissance (ISR) programs throughout DoD. The JTC/SIL provides a Government test bed for rapid prototyping, technology insertion and transition, systems engineering, modeling/simulation, training and Command Control Communications Computers and Intelligence (C4I) optimization. The cornerstone of its diverse tool set is the Multiple Unified Simulation Environment (MUSE), which is the Department's simulation/training system of choice for ISR systems, sensors, and platforms. The MUSE is also known as the Air Force Synthetic Environment for Reconnaissance and Surveillance (AFSERS) in its Air Force application.

The Services and Warfighting Commanders have a requirement for the capability to train with a system that provides a real-time simulation environment containing multiple intelligence systems that can be integrated with larger force-on-force simulations. The MUSE creates a realistic operational environment which supports the ability to assess military utility, architecture and Concept of Operations (CONOPS) development, Tactics, Techniques, and Procedures (TTP) development and refinement, the conduct of emerging concepts experimentation and C4I optimization within warfighting exercises and experiments. The MUSE/AFSERS is the only capability within the Department that allows all Services to train with UAS and ISR assets in a Joint training environment. The MUSE also creates a realistic operational environment that supports an embedded training capability for multiple Program Managers. These tools help to minimize acquisition and life cycle cost and schedule impacts.

The MUSE is currently in use within all services and unified commands simulating PREDATOR, GLOBAL HAWK, HUNTER, Shadow 200 and PIONEER UASs, national and commercial satellite collectors, P-3 and the U-2. During warfighting exercises, the JTC/SIL integrates realistic high-fidelity imagery simulations, emulating the C4I construct. For those assets normally not available for training, the JTC/SIL provides surrogate systems and interfaces. Distributed training environments, virtually linking participants from various locations worldwide, are routinely supported within the MUSE architecture. The MUSE/AFSERS is also used as a Mission Rehearsal Tool for current on-going combat operations.

Activities also include studies and analysis to support both current program planning and execution and future program planning.

The JTC/SIL is supporting the OSD Task Force Staff and the Standards and Interoperability IPT as well as the joint team working the Ground Segment Interface (GSI). The JTC/SIL is the primary custodian of this interface and in that role performs various supporting task including development of tools for helping the definition and execution of an open architecture for joint service ground control systems, developing and maintaining STANAG 45 joint interoperability tasks to be defined on an annual basis.

This program is categorized as Budget Activity 7 because it provides for the development of technologies and capabilities in support of operational system development.

**Exhibit R-2a, RDT&E Project Justification**

DATE

**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0305206F Airborne Reconnaissance Systems</b>	PROJECT NUMBER AND TITLE <b>5092 JTC/SIL MUSE</b>
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(U) <b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Laboratory sustainment	0.334	0.334	0.334
(U) Air Force Synthetic Environment for Reconnaissance and Surveillance (AFSERS) development	0.911	0.819	0.636
(U) Common Ground Station Interface			2.000
(U) Maintenance, Licenses and equipment purchases	0.500	0.500	0.500
(U) Total Cost	1.745	1.653	3.470

(U) <b><u>C. Other Program Funding Summary (\$ in Millions)</u></b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	

(U) Other  
 The program receives approximately \$2.3M per year from the Army (PE 0305204A) and \$1.7M per year from the Navy (PE P0305204N) and beginning in FY10 will receive an additional \$2M from each USA and USN for Common Ground Station.

(U) **D. Acquisition Strategy**  
 All contracts are awarded after full and open competition and when situations dictate, via sole source.

UNCLASSIFIED

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0305206F Airborne Reconnaissance Systems</b>	<b>PROJECT NUMBER AND TITLE</b> <b>5092 JTC/SIL MUSE</b>
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(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> JTC/SIL	MIPR	Redstone Arsenal, Huntsville, AL	17.004	1.745	Jan-08	1.653	Jan-09	3.470	Jan-10	Continuing	TBD	TBD
Subtotal Product Development			17.004	1.745		1.653		3.470		Continuing	TBD	TBD
Remarks:												
(U) Total Cost			17.004	1.745		1.653		3.470		Continuing	TBD	TBD

## Exhibit R-4, RDT&amp;E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305206F Airborne Reconnaissance  
Systems

PROJECT NUMBER AND TITLE

5092 JTC/SIL MUSE

*JTC/SIL Schedule*

	FY08	FY09	FY10
Provide ISR support to Exercises & Demos	██████████	██████████	██████████
Continue development of SIGINT capability	██████████	██████████	██████████
Continue Laser Designator capability	██████████	██████████	██████████
Implement Tactical Common Data Link Model	██████████	██████████	██████████
National Space Assets Enhancements	██████████	██████████	██████████
Continue development of Auto Track/Search	██████████	██████████	██████████
Continue development of damage to fixed targets	██████████	██████████	██████████
Continue C4I Enhancements	██████████	██████████	██████████
Continue Reaper Development	██████████	██████████	██████████
Continue Sky Warrior development	██████████	██████████	██████████
Continue development of Small UAS model	██████████	██████████	██████████
Continue HLA & DIACAP certification	██████████	██████████	██████████
Support new targeting & Assessment techniques used in combat operations	██████████	██████████	██████████
Integrate w/ Joint Forces National training capabilities	██████████	██████████	██████████
Develop Multi-Spectral imagery databases	██████████	██████████	██████████
Weaponized UAS model development	██████████	██████████	██████████
Incorporate STANAG 4586 Interface model	██████████	██████████	██████████
Continue UAS survivability models & attributes	██████████	██████████	██████████
Implement Advanced Sensor/Payload Simulations	██████████	██████████	██████████
Enhance IR & SAR model sets	██████████	██████████	██████████
Continue Asymmetric Warfare Development	██████████	██████████	██████████

R-1 Line Item No. 203

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Project 5092

Exhibit R-4 (PE 0305206F)

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## Exhibit R-4a, RDT&amp;E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305206F Airborne Reconnaissance  
Systems

PROJECT NUMBER AND TITLE

5092 JTC/SIL MUSE

(U) <u>Schedule Profile</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Provide ISR support to exercises and demonstrations	1-4Q	1-4Q	1-4Q
(U) Continue development of SIGINT platforms	1-4Q	1-4Q	1-4Q
(U) Continue Laser Designator capability	1-4Q	1-4Q	
(U) Implement Tactical Common Data Link model	1-4Q	1-4Q	1-4Q
(U) National space assets enhancements	1-4Q	1-4Q	1-4Q
(U) Continue development of auto track/search	1-4Q	1-4Q	1-4Q
(U) Continue development of damage to fixed targets	1-4Q	1-4Q	1-4Q
(U) Continue C4I enhancements	1-4Q	1-4Q	1-4Q
(U) Continue Predator B (Reaper) development	1-4Q	1-4Q	
(U) Continue ERMP development	1-4Q	1-4Q	1-4Q
(U) Continue development of Small UAV model	1-4Q	1-4Q	1-4Q
(U) Continue HLA & DIACAP certification	1-4Q	1-4Q	1-4Q
(U) Support new targeting and assessment techniques used in combat operations	1-4Q	1-4Q	1-4Q
(U) Integrate with Joint Forces national training capabilities	1-4Q	1-4Q	1-4Q
(U) Develop multi-spectral imagery databases	1-4Q	1-4Q	1-4Q
(U) Weaponized UAS model development	1-4Q	1-4Q	1-4Q
(U) Incorporate STANAG 4586 Datalink interface standard	1-4Q	1-4Q	1-4Q
(U) Continue UAS survivability models & attributes	1-4Q	1-4Q	1-4Q
(U) Support Common Ground Station Interface			1 4Q

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>				<b>PE NUMBER AND TITLE</b> <b>0305206F Airborne Reconnaissance Systems</b>				<b>PROJECT NUMBER AND TITLE</b> <b>5291 Wide Area Airborne Surveillance (WAAS)</b>		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5291 Wide Area Airborne Surveillance (WAAS)	0.000	34.000	46.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

Funding increase beginning in FY09 will meet Combatant Commander (COCOM) Wide Area Airborne Surveillance (WAAS) urgent operational need and will be managed by the Air Force through the 645th Aeronautical Systems Group (AESG, aka BIG SAFARI), Reconnaissance Systems Wing, Aeronautical Systems Center, Air Force Material Command.

Develop a podded wide area airborne sensor suite to provide city-sized and similar broad area surveillance capability for the Combatant Commanders (COCOMs). The Joint Requirements Oversight Council Memorandum (JROCM 106-08, dated 27 May 08) approved the Air Force concept for a Wide Area Airborne Surveillance (WAAS) program plan to address Service requirements for wide area airborne sensors on existing manned and unmanned aircraft system platforms. Funding will be allocated in FY09-FY10 for this Air Force program to meet Combatant Commander (COCOM) Wide Area Airborne Surveillance (WAAS) urgent operational need and will be managed through the 645th Aeronautical Systems Group (AESG, a.k.a. BIG SAFARI Program Office), 303rd Reconnaissance Systems Wing, Aeronautical Systems Center, Air Force Material Command. Air Force provided FY08 funds in BPAC 674818, Imaging and Targeting Support, to initiate program management and system integration concept development. BIG SAFARI Program Office initiated a contract with Sierra Nevada Corporation in July 2008 for this program. Program funding for WAAS will be appropriated to this new BPAC 675291 starting in FY09.

Activities also include studies and analysis to support both current program planning and execution and future program planning.

This program is categorized as Budget Activity 7 because it provides for development of technologies and capabilities in support of operational system development.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Program Mgt/System Engineering		8.000	8.000
(U) Airborne System Element (Increment I)		17.100	18.138
(U) C2 Element		3.000	4.048
(U) Tactical Dissemination Element		3.300	4.462
(U) Fixed Site Processing Element		2.000	2.714
(U) Airborne System Element (Increment II)		0.600	8.638
(U) Total Cost	0.000	34.000	46.000

Exhibit R-2a, RDT&E Project Justification

DATE

May 2009

BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0305206F Airborne Reconnaissance Systems</b>	PROJECT NUMBER AND TITLE <b>5291 Wide Area Airborne Surveillance (WAAS)</b>
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(U) **C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Procurement (PE 0305206F), Airborne Reconn Systems, MN-9136		43.538	19.903						Continuing	TBD
(U) O&M (PE 0305206F), Airborne Reconn Systems)			13.000						Continuing	TBD

(U) **D. Acquisition Strategy**

In response to a COCOM urgent operational need, the WAAS program will be executed by the 645 AESG (BIG SAFARI Program Office) using an incremental "baseline" acquisition strategy to mitigate risk, find affordable end-to-end architecture solutions and field needed capabilities quickly to address Service requirements for wide area airborne sensors on existing manned and unmanned aircraft system platforms.



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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>07 Operational System Development</b>				<b>0305206F Airborne Reconnaissance Systems</b>					<b>5291 Wide Area Airborne Surveillance (WAAS)</b>			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
Sierra Nevada Corporation		Sparks, NV	0.000	0.000		24.000	Jan-09	35.286	Dec-09	Continuing	TBD	TBD
Subtotal Product Development			0.000	0.000		24.000		35.286		Continuing	TBD	TBD
Remarks:												
(U) <u>Support</u>												
Subtotal Support			0.000	0.000		2.000	Jan-09	2.714	Dec-09	Continuing	TBD	0.000
Remarks:						2.000		2.714		Continuing	TBD	
(U) <u>Test &amp; Evaluation</u>												
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Management</u>												
645 AESG, AFRL, Sierra Nevada Corporation		Multiple locations				8.000	Jan-09	8.000	Dec-09	Continuing	TBD	
Subtotal Management			0.000	0.000		8.000		8.000		Continuing	TBD	0.000
Remarks:												
(U) Total Cost			0.000	0.000		34.000		46.000		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

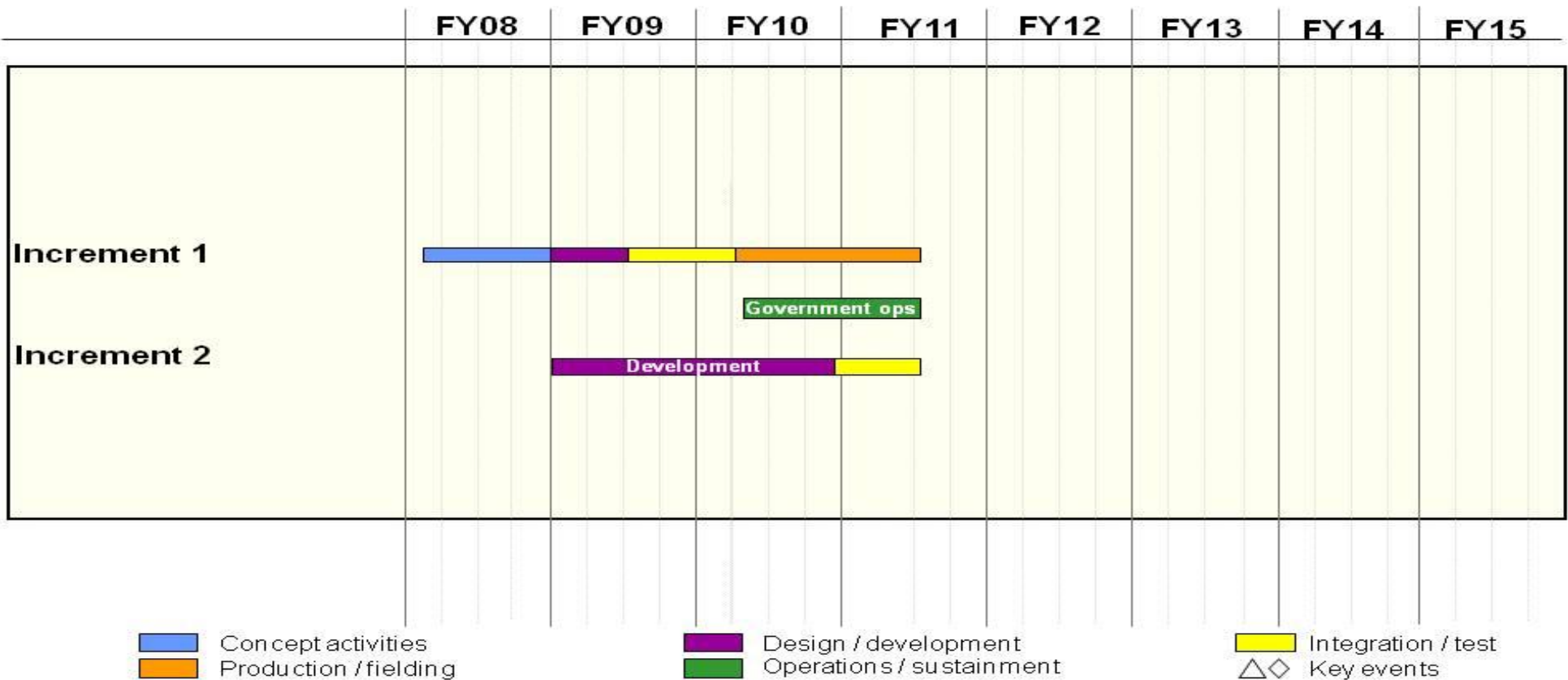
May 2009

BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0305206F Airborne Reconnaissance  
Systems

PROJECT NUMBER AND TITLE  
5291 Wide Area Airborne Surveillance  
(WAAS)

# WAAS Schedule



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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>May 2009</b>
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BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0305206F Airborne Reconnaissance Systems</b>	PROJECT NUMBER AND TITLE <b>5291 Wide Area Airborne Surveillance (WAAS)</b>
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<b>(U) <u>Schedule Profile</u></b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Airborne System Element (Increment I)	1-4Q	1-4Q	1-4Q
(U) Airborne System Element (Increment II)		1-4Q	1-4Q

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>				PE NUMBER AND TITLE <b>0305206F Airborne Reconnaissance Systems</b>				PROJECT NUMBER AND TITLE <b>5292 Airborne Cueing &amp; Exploitation Sys-Hyperspectral(ACES HY)</b>			
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total	
5292 Airborne Cueing & Exploitation Sys-Hyperspectral(ACES HY)	0.000	10.000	5.614	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0			

**(U) A. Mission Description and Budget Item Justification**

The purpose of the Airborne Cueing and Exploitation System Hyperspectral (ACES HY) project is to provide Hyperspectral Imagery (HSI) sensors and capabilities for MQ-1 Predator Unmanned Aircraft System (UAS) and other manned and unmanned aircraft. ACES HY supports the sponsoring combatant command, Central Command (CENTCOM), and other warfighter requirements.

ACES HY will initially procure multiple sensors, integrate them onto the MQ-1 and other platforms, and develop the necessary training, maintenance and fielding plans to support a working architecture.

FY08 funding (\$10M) was executed out of PE 35206, BPAC 674818.

Activities also include studies and analysis to support both current and future program planning and execution.

This program is categorized as Budget Activity 7 because it provides for development of technologies and capabilities in support of operational system development.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Procure three ACES HY sensors, integrated onto MQ-1 Predator UAS and provide training and support		8.359	4.130
(U) Mission Support		1.641	1.484
(U) Total Cost	0.000	10.000	5.614

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to Complete</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>		
(U) FY08 funding (\$10M) was executed out of PE 35206, BPAC 674818	10.000									

**(U) D. Acquisition Strategy**

Develop an industry partner to procure an improved, baseline deployable, supportable HSI sensor system. The system should support joint warfighter and ensure spiral upgrade capability. Utilize the Advanced Technology Support Program process developed by OSD DMEA at McClellan, CA. The contractor should provide a disciplined design process that is the lowest risk solution--cost, schedule, and performance and ensures logistic support with initial test spares, training and associated

**Exhibit R-2a, RDT&E Project Justification**

DATE

**May 2009**

BUDGET ACTIVITY

**07 Operational System Development**

PE NUMBER AND TITLE

**0305206F Airborne Reconnaissance  
Systems**

PROJECT NUMBER AND TITLE

**5292 Airborne Cueing & Exploitation  
Sys-Hyperspectral(ACES HY)**

source data. Included in the scope of effort is aircraft integration support with a support contract with the MQ-1 contractor to ensure the necessary interface baseline is established for the National Air and Space Intelligence Center (NASIC) exploitation system.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE				
<b>07 Operational System Development</b>				<b>0305206F Airborne Reconnaissance Systems</b>				<b>5292 Airborne Cueing &amp; Exploitation Sys-Hyperspectral(ACES HY)</b>				
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
Raytheon	C/CPFF	McKinney, TX				8.359	Mar-09	4.130	Jun-10	Continuing	TBD	TBD
Subtotal Product Development			0.000	0.000		8.359		4.130		Continuing	TBD	TBD
Remarks:												
(U) <u>Support</u>												
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Management</u>												
Subtotal Management			0.000	0.000		1.641		1.484		Continuing	TBD	0.000
Remarks:												
(U) Total Cost			0.000	0.000		10.000		5.614		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

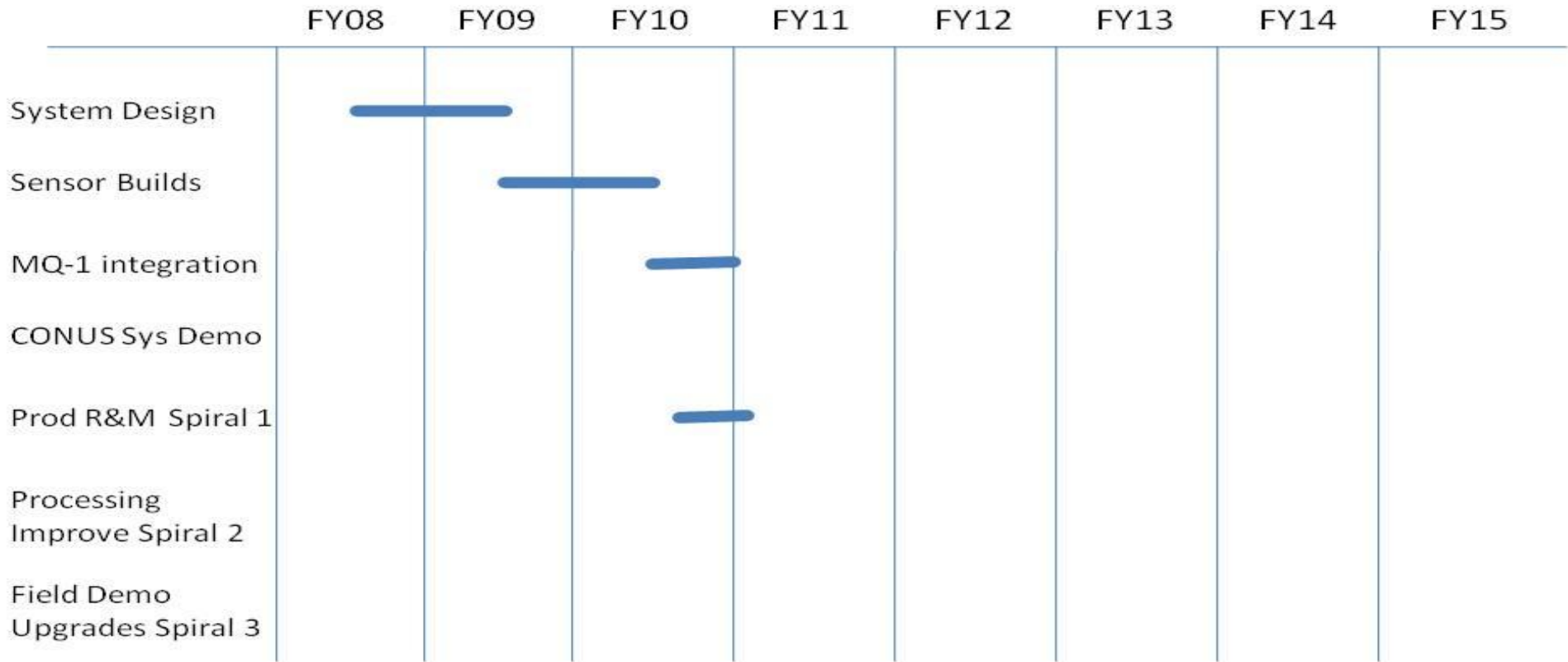
May 2009

BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0305206F Airborne Reconnaissance  
Systems

PROJECT NUMBER AND TITLE  
5292 Airborne Cueing & Exploitation  
Sys-Hyperspectral(ACES HY)

ACES HY Program Schedule



Three sensor systems are scheduled to be delivered by July 2010

Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305206F Airborne Reconnaissance Systems

PROJECT NUMBER AND TITLE

5292 Airborne Cueing & Exploitation Sys-Hyperspectral(ACES HY)

(U) Schedule Profile

FY 2008

FY 2009

FY 2010

(U) System Design

3-4Q

1-3Q

(U) Sensor Builds

3-4Q

1-3Q

(U) MQ-1 Integration

3-4Q

(U) Prod R&M Spiral 1

3-4Q



<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0305207F Manned Reconnaissance System</b>
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	24.333	17.811	12.846	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
4754 COBRA BALL	24.333	17.811	12.846	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

(U) **A. Mission Description and Budget Item Justification**

The RC-135 Operational Systems Development and enhancement activities project supports design studies, engineering analysis, non-recurring engineering, and other efforts associated with the integration and modification of the RC-135 programs and their specialized mission systems - both air and ground. Extensive utilization of commercial-off the-shelf (COTS) based solutions allows rapid fielding of needed capabilities through continuous technology refresh cycles and vanishing-vendor logistics mitigation efforts.

The results of these efforts provide for preliminary assessments of technical feasibility, operability, or military utility as well as specific engineering implementations for integration into the various systems baseline configurations.

These activities are managed by the Air Force through the 645th Aeronautical System Group (645th AESG, a.k.a. BIG SAFARI Program Office), 303rd Reconnaissance System Wing, Aeronautical Systems Center, Air Force Materiel Command, Wright Patterson AFB, OH. BIG SAFARI manages engineering, ground and support system modifications, integration, flight testing, product assurance, acceptance testing, logistics, and training activities. Aircraft, aircraft sensor systems, and associated ground support system modifications planned for FY09-FY15 include support for three distinct RC-135V/W RIVET JOINT configurations [Baselines 8, 9 & 10], two distinct RC-135U COMBAT SENT configurations [Baselines 3 & 4] and three distinct RC-135S COBRA BALL configurations [Baselines 2, 3 & 4]. SEE CLASSIFIED Congressional budget exhibits.

The world-wide challenge of keeping pace against technologically agile targets used by both nation and non-nation-state adversaries and the rapid evolution of COTS technologies demands a responsive and adaptive acquisition strategy for fielding 'baseline capabilities' that are logistically supportable at all locations. The BIG SAFARI program office uses an incremental 'baseline' strategy to mitigate risk, find affordable solutions and field needed capabilities. Obsolescence and diminishing manufacturing sources (DMS) are addressed with each baseline upgrade as well as annually as part of the sustainment responsibilities. Activities also include studies and analysis to support both current program planning and execution and future program planning.

This program effort is categorized as RDT&E budget activity 7, Operational Systems Development, because it involves Air Force R&D for technologies necessary to field essential operational capabilities.

Exhibit R-2, RDT&E Budget Item Justification

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305207F Manned Reconnaissance System

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	21.387	12.819	13.130
(U) Current PBR/President's Budget	24.333	17.811	12.846
(U) Total Adjustments	2.946	4.992	
(U) Congressional Program Reductions			
Congressional Rescissions			
Congressional Increases			
Reprogrammings	2.946	4.992	
SBIR/STTR Transfer			

(U) **Significant Program Changes:**

FY2008 and FY2009 increases reflect reprogramming funding for research and development contracts

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>					PE NUMBER AND TITLE <b>0305207F Manned Reconnaissance System</b>			PROJECT NUMBER AND TITLE <b>4754 COBRA BALL</b>		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
4754 COBRA BALL	24.333	17.811	12.846	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

The RC-135 Operational Systems Development and enhancement activities project supports design studies, engineering analysis, non-recurring engineering, and other efforts associated with the integration and modification of the RC-135 programs and their specialized mission systems - both air and ground. Extensive utilization of commercial-off the-shelf (COTS) based solutions allows rapid fielding of needed capabilities through continuous technology refresh cycles and vanishing-vendor logistics mitigation efforts.

The results of these efforts provide for preliminary assessments of technical feasibility, operability, or military utility as well as specific engineering implementations for integration into the various systems baseline configurations.

These activities are managed by the Air Force through the 645th Aeronautical System Group (645th AESG, a.k.a. BIG SAFARI Program Office), 303rd Reconnaissance System Wing, Aeronautical Systems Center, Air Force Materiel Command, Wright Patterson AFB, OH. BIG SAFARI manages engineering, ground and support system modifications, integration, flight testing, product assurance, acceptance testing, logistics, and training activities. Aircraft, aircraft sensor systems, and associated ground support system modifications planned for FY09-FY15 include support for three distinct RC-135V/W RIVET JOINT configurations [Baselines 8, 9 & 10], two distinct RC-135U COMBAT SENT configurations [Baselines 3 & 4] and three distinct RC-135S COBRA BALL configurations [Baselines 2, 3 & 4]. SEE CLASSIFIED Congressional budget exhibits.

The world-wide challenge of keeping pace against technologically agile targets used by both nation and non-nation-state adversaries and the rapid evolution of COTS technologies demands a responsive and adaptive acquisition strategy for fielding 'baseline capabilities' that are logistically supportable at all locations. The BIG SAFARI program office uses an incremental 'baseline' strategy to mitigate risk, find affordable solutions and field needed capabilities. Obsolescence and diminishing manufacturing sources (DMS) are addressed with each baseline upgrade as well as annually as part of the sustainment responsibilities. Activities also include studies and analysis to support both current program planning and execution and future program planning.

This program effort is categorized as RDT&E budget activity 7, Operational Systems Development, because it involves Air Force R&D for technologies necessary to field essential operational capabilities.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	FY 2008	FY 2009	FY 2010
(U) Continues Non-Recurring Engineering (NRE) for the development and installation of improved mission capabilities - see classified submission.	12.503	12.819	12.846
(U) FY08 Congressional Add: COMBAT SENT Tactical ELINT System modernization study (two year effort)	4.000		
(U) FY08 Congressional Add: RIVET JOINT Network Interface Growth	2.400		
(U) FY08 Congressional Add: COBRA BALL Sensor Gimbal Stabilization	2.500		

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0305207F Manned Reconnaissance System</b>	<b>PROJECT NUMBER AND TITLE</b> <b>4754 COBRA BALL</b>
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<b>(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) FY08 Reprogramming to support Common Digital IFF Control Panel Development	2.930		
(U) FY09 Reprogramming to support Research and Development Contracts		4.992	
(U) Total Cost	24.333	17.811	12.846

Activities also include studies and analysis to support both current program planning and execution and future program planning.

<b>(U) <u>C. Other Program Funding Summary (\$ in Millions)</u></b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) PE 0305207F, APAF	165.551	142.694	156.539						Continuing	TBD
(U) PE 0305207F, OPAF	22.380	22.857	23.468						Continuing	TBD
(U) PE 0305207F, O&M	541.225	293.310	248.917						Continuing	TBD

**(U) D. Acquisition Strategy**

The RC-135 RIVET JOINT, COBRA BALL, and COMBAT SENT aircraft are maintained and baseline / incremental upgrades and quick reaction capabilities (QRC) developments are acquired through the 645th Aeronautical Systems Group (BIG SAFARI Program Office) in accordance with the Program Management Directive (PMD) for BIG SAFARI Programs, and the BIG SAFARI Class Justification and Approval (J&A) document for acquisition of supplies and services using other than full and open competition. The supplies and services procured by 645th AESG under their J&A to satisfy National Security (FAR 6.302-6) or Unusual and Compelling Urgency (FAR 6.302-2) requirements include the full range of system life cycle management program (LCMP) support from developmental engineering to system retirement. Due to the rapidly changing threat environment of the long Overseas Contingency Operations (OCO), the acquisition program manager has the authority to redirect funding as necessary to meet the requirements.

UNCLASSIFIED

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0305207F Manned Reconnaissance System</b>	PROJECT NUMBER AND TITLE <b>4754 COBRA BALL</b>
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(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
L-3 Communications	CPFF/CPIF /FFP	L-3 Com, Greenville TX	37.015	24.333	Dec-07	17.811	Dec-08	12.846	Dec-09	Continuing	TBD	TBD
Subtotal Product Development			37.015	24.333		17.811		12.846		Continuing	TBD	TBD
Remarks:	All activity is based around the Programmed Depot Maintenance (PDM) airframe schedule which includes multiple contracts and organizations with overlapping and continuous periods of performance. Due to the rapidly changing threat environment of the long Global War on Terrorism, the acquisition program manager has the authority to redirect funding as necessary to meet the requirements.											
(U) Total Cost			37.015	24.333		17.811		12.846		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

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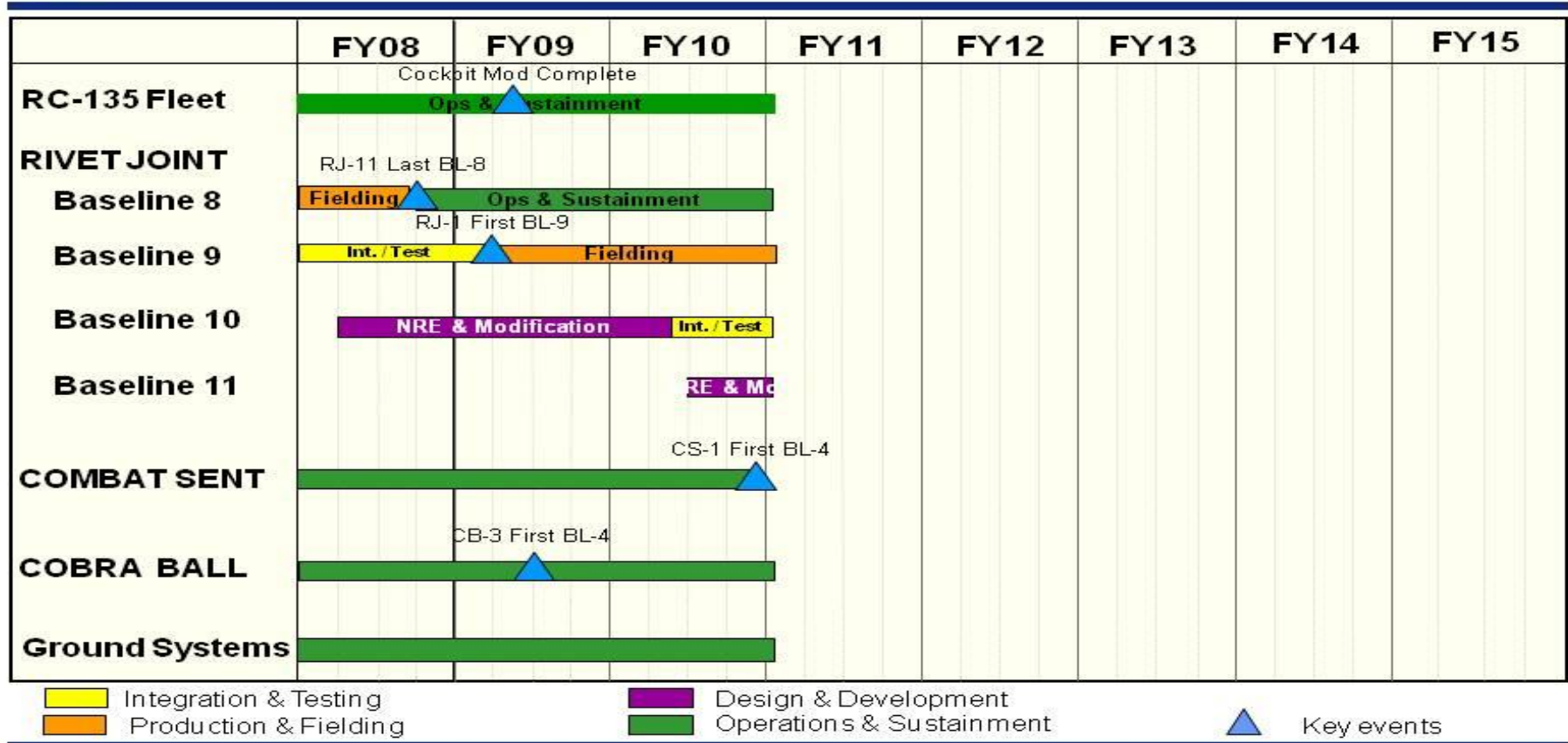
BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0305207F Manned Reconnaissance System

PROJECT NUMBER AND TITLE  
4754 COBRA BALL



# Manned Reconnaissance (RC-135) Schedule



FY10 PB

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Exhibit R-4a, RDT&E Schedule Detail

DATE

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305207F Manned Reconnaissance System

PROJECT NUMBER AND TITLE

4754 COBRA BALL

(U) Schedule Profile

FY 2008

FY 2009

FY 2010

(U) \* Classified Mission Systems Development

1-4Q

1-4Q

1-4Q

\* See Classified Budget Submission for further breakout.

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0305208F Distributed Common Ground Systems</b>
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	100.330	105.272	82.765	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
4826 Common Imagery Ground / Surface Systems	87.872	93.974	70.513	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5265 Common Imagery Processor (CIP)	12.458	11.298	12.252	0.000	0.000	0.000	0.000	0.000	0.000	0.000

**(U) A. Mission Description and Budget Item Justification**

The DoD Distributed Common Ground/Surface System (DCGS) Program is a cooperative effort between the Services and National Agencies to provide world-wide ground/surface systems capable of receiving, processing, exploiting, and disseminating data from airborne and national reconnaissance sensors/platforms and commercial sources. The DCGS program is developing a family of systems capable of supporting all levels of conflict, interoperable with reconnaissance platforms and sensors, and integrated into the Joint Command, Control, Communication, Computer, and Intelligence (C4I) environment. The program integrates architectures and standards from DCGS Imagery architecture for Imagery Intelligence (IMINT), Joint Interoperable Operator Network (JION) for Signals Intelligence (SIGINT), and Joint Airborne Measurement and Signature Intelligence (MASINT) Architecture (JAMA) for MASINT, and all-source analyses to Combat Air Forces and Combatant Commanders. The Air Force has been charged with developing, upgrading and managing the DCGS Integration Backbone (DIB) for all the Services to provide common DCGS enterprise services and interoperability at the data level.

AF DCGS provides the Air Force ground systems capable of tasking intelligence sensors, and receiving, processing, exploiting, and disseminating data from airborne and national reconnaissance platforms and commercial sources. AF DCGS is a 'system of systems' interconnected by a robust communications structure to provide data sharing capabilities between intelligence collectors, exploiters, producers, disseminators, and users. AF DCGS has five core locations: two CONUS based and three OCONUS. Several other AF DCGS systems are distributed among Air Force operational units at Numbered Air Force and Air National Guard locations, to support Joint Task Force commanders and Air and Space Operations Centers (AOC). The CONUS based systems are capable of reach back operations via data link and satellite relay connectivity to forward operating sensors.

AF DCGS provides critical data and significant support for Time Sensitive Targeting (TST) operations. This support will be enhanced with integration of software tools and data interfaces to the AOC system changes required for new/upgraded sensors and by the transformation of AF DCGS to a net-centric, service oriented architecture construct. By converting from a stovepipe system of systems to a web based integrated net centric Intelligence, Surveillance, and Reconnaissance (ISR) management capability, AF DCGS will provide the Joint Forces Air Component Commander (JFACC) the capability to:

- 1) Dynamically visualize and command ISR assets and the information in the AOC
- 2) Quickly and effectively synchronize AF DCGS ISR operations, collection capabilities, and information with the AOC's combat objectives to improve the TST process and reduce timelines.

AF DCGS is also being integrated into the Network Centric Collaborative Targeting (NCCT) network.

Using the DIB, AF DCGS modernization is transforming AF DCGS from a proprietary system to a net centric service oriented architecture. This modernization effort,

Exhibit R-2, RDT&E Budget Item Justification

DATE

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305208F Distributed Common Ground Systems

implemented in Block 10.2, will deliver a net centric DCGS capability for the Air Force. Block 10.2 will spiral the necessary technologies and tools into its architecture to provide increased capabilities and meet emerging and urgent user operational needs. These spirals will also integrate COTS and GOTS fact-of-life version upgrades to provide current technologies and achieve necessary application and services. The next series of upgades will meet the operational need to integrate new and/or improved sensor capabilities and enhance interoperability by migrating to a service oriented architecture and improving data sharing ability in compliance with DoD direction.

The DIB was developed with the Block 10.2 upgrade and, in accordance with DoD direction, is being managed and upgraded by the Air Force to meet emerging DCGS architecture and standards for Joint and Coalition interoperability.

AF DCGS will also modernize its network management and interface capabilities by upgrading and migrating its network to a standardized interface configuration which is easy to expand and adapt to new technologies while growing capacity requirements. Efforts will also focus on network management systems and the ability to manage critical bandwidths to meet operational surges and distributed operational requirements.

The Common Imagery Processor (CIP) is the common sensor processing element within DCGS IMINT architecture. The function of the CIP is to accept airborne imagery data, process it into an exploitable image, and output the image to other elements within DCGS. Efforts continue to upgrade the CIP baseline to maintain currency with upgraded/new sensors.

The DCGS-I Testbed is a mobile test environment, which is used by Service and Agency program offices to test interoperability interfaces with new sensors, applications, and net centric operations. This testbed also supports the integration and testing of DoD DCGS components prior to introduction into the operational environment. Upgrades to the DCGS-I Testbed will ensure it maintains currency with existing interface standards.

AF DCGS participates in the development, testing, and implementation of international standards (to include NATO standardization agreements) to ensure joint, allied, and coalition interoperability.

AF DCGS is categorized as Budget Activity 7 because it provides for development of technologies and capabilities in support of operational system development.

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	107.048	107.834	122.796
(U) Current PBR/President's Budget	100.330	105.272	82.765
(U) Total Adjustments	-6.718	-2.562	
(U) Congressional Program Reductions		-2.270	
Congressional Rescissions		-0.292	
Congressional Increases			
Reprogrammings	-6.718		
SBIR/STTR Transfer			
(U) <u>Significant Program Changes:</u>			

Exhibit R-2, RDT&E Budget Item Justification

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

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- Decrease from FY09 to FY 10 is due to AF decision to cancel the next large block upgrade for the program (Block 20) and change to an acquisition strategy of incremental modifications during sustainment.

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>May 2009</b>
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BUDGET ACTIVITY <b>07 Operational System Development</b>				PE NUMBER AND TITLE <b>0305208F Distributed Common Ground Systems</b>				PROJECT NUMBER AND TITLE <b>4826 Common Imagery Ground / Surface Systems</b>		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
4826 Common Imagery Ground / Surface Systems	87.872	93.974	70.513	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) **A. Mission Description and Budget Item Justification**

The DoD Distributed Common Ground/Surface System (DCGS) Program is a cooperative effort between the Services and National Agencies to provide world-wide ground/surface systems capable of receiving, processing, exploiting, and disseminating data from airborne and national reconnaissance sensors/platforms and commercial sources. The DCGS program is developing a family of systems capable of supporting all levels of conflict, interoperable with reconnaissance platforms and sensors, and integrated into the Joint Command, Control, Communication, Computer, and Intelligence (C4I) environment. The program integrates architectures and standards from DCGS Imagery architecture for Imagery Intelligence (IMINT), Joint Interoperable Operator Network (JION) for Signals Intelligence (SIGINT), and Joint Airborne Measurement and Signature Intelligence (MASINT) Architecture (JAMA) for MASINT, and all-source analyses to Combat Air Forces and Combatant Commanders. The Air Force has been charged with developing, upgrading and managing the DCGS Integration Backbone (DIB) for all the Services to provide common DCGS enterprise services and interoperability at the data level.

DCGS provides the Air Force ground systems capable of tasking intelligence sensors, and receiving, processing, exploiting, and disseminating data from airborne and national reconnaissance platforms and commercial sources. AF DCGS is a 'system of systems' interconnected by a robust communications structure to provide data sharing capabilities between intelligence collectors, exploiters, producers, disseminators, and users. AF DCGS has five core locations: two CONUS based and three OCONUS. Several other AF DCGS systems are distributed among Air Force operational units at Numbered Air Force and Air National Guard locations, to support Joint Task Force commanders and Air Operations Centers (AOC). The CONUS based systems are capable of reach back operations via data link relay and satellite relay connectivity to forward operating sensors.

AF DCGS provides critical data and significant support for Time Sensitive Targeting (TST) operations. This support will be enhanced with the integration of software tools and data interfaces to the AOC system changes required for new/upgraded sensors and by the transformation of AF DCGS to a net centric, service oriented architecture construct. By converting from a stovepipe system of systems to a web based integrated net centric Intelligence, Surveillance, and Reconnaissance (ISR) management capability. AF DCGS will provide the Joint Forces Air Component Commander (JFACC) the capability to:

- 1) Dynamically visualize and command ISR assets and the information in the AOC
- 2) Quickly and effectively synchronize AF DCGS ISR operations, collection capabilities, and information with the AOC's combat objectives to improve the TST process and reduce timelines.

AF DCGS is also being integrated into the Network Centric Collaborative Targeting (NCCT) network.

Using the DIB, AF DCGS modernization will transform AF DCGS from its existing proprietary system to a net centric service oriented architecture. This modernization effort, implemented in Block 10.2, will deliver a net centric DCGS capability for the Air Force. Block 10.2 will spiral the necessary technologies and

**Exhibit R-2a, RDT&E Project Justification**

DATE

**May 2009**

BUDGET ACTIVITY

**07 Operational System Development**

PE NUMBER AND TITLE

**0305208F Distributed Common Ground Systems**

PROJECT NUMBER AND TITLE

**4826 Common Imagery Ground / Surface Systems**

tools into its architecture to provide increased capabilities and meet emerging and urgent user operational needs. These spirals will also integrate COTS and GOTS fact-of-life version upgrades to provide current technologies and achieve necessary application and services. The next series of upgrades will meet the operational need to integrate new and/or improved sensor capabilities and enhance interoperability by migrating to a service oriented architecture and improving data sharing ability in compliance with DoD direction.

The DIB was developed with the Block 10.2 upgrade and, in accordance with DoD direction, is being managed and upgraded by the Air Force to meet emerging DCGS net centric architecture and standards for Joint and Coalition operability.

AF DCGS will also modernize its network management and interface capabilities by upgrading and migrating its network to a standardized interface configuration which is easy to expand and adapt to new technologies while growing capacity requirements. Efforts will also focus on network management systems and the ability to manage critical bandwidths to meet operational surges and distributed ops requirements.

The DCGS-I Testbed is a mobile test environment, which is used by Service and Agency program offices to test interoperability interfaces with new sensors, applications, and net centric operations. This testbed also supports the integration and testing of DoD DCGS components prior to introduction into the operational environment. Upgrades to the DCGS-I Testbed will ensure it maintains currency with existing interface standards.

AF DCGS participates in the development, testing, and implementation of international standards (to include NATO standardization agreements) to ensure joint, allied, and coalition interoperability.

AF DCGS is categorized as Budget Activity 7 because it provides for development of technologies and capabilities in support of operational system development.

<b>(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Continue Block 10.2 upgrades to provide required tools for AF DCGS support to the JTF Commander and below.	31.254	24.471	
(U) Continue development efforts to meet operational need to integrate new and improved sensors, increase capacity and data availability, and comply with DoD direction to improve interoperability through migration to a service oriented architecture construct.	22.760	51.222	50.569
(U) Continue upgrade of AF DCGS network and communications network.	8.858	2.000	2.400
(U) Continue evolving DCGS architectures and standards for commonality and interoperability across intelligence disciplines to include NATO interoperability and management of DCGS IPT effort for USD(I)	2.115	2.831	2.888
(U) Continue DCGS-I Testbed development and upgrades.	3.841	3.550	3.956
(U) Upgrade, improve and manage the DIB.	15.559	7.200	7.800
(U) Continue commercial imagery integration.	2.690	2.700	2.900
(U) Provide Advanced Architecture Design support US Army Net Centric Warfare .	0.795		
(U) Total Cost	87.872	93.974	70.513

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0305208F Distributed Common Ground Systems</b>	<b>PROJECT NUMBER AND TITLE</b> <b>4826 Common Imagery Ground / Surface Systems</b>
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**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to Complete</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>		
(U) OPAF (PE 0305208F) 3080 Production Costs (FY10 POM/BES)	245.121	250.778	293.640							789.539

**(U) D. Acquisition Strategy**

The Air Force has changed the AF DCGS acquisition strategy from a single block upgrade to incremental modifications during sustainment integrating mature advanced technologies and multi-intelligence exploitation tools while meeting emerging operational requirements and integrating new/upgraded sensors.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE  
**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE				
<b>07 Operational System Development</b>				<b>0305208F Distributed Common Ground Systems</b>				<b>4826 Common Imagery Ground / Surface Systems</b>				
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2008 Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date	Cost to Complete	Total Cost	Target Value of Contract
(U) <u>Product Development</u> Block 10.2 Spiral Upgrades	C/Multiple	Raytheon, Lockheed Martin, L3, Redstone	289.094	31.254	Jan-08	24.471	Feb-09				344.819	336.473
Modernization/modification efforts and integration of new sensors and operational capabilities	C/Multiple	Multiple		22.760	Dec-08	51.222		50.569		Continuing	TBD	TBD
Network Communications Upgrade	C/Multiple	Global Technologies, Raytheon, Lockheed Martin		8.858	May-08	2.000	May-09	2.400	May-09	Continuing	TBD	TBD
DCGS IPT for USD(I)	C/Multiple	Science Applications Int'l		2.115	Mar-08	2.831	Mar-09	2.888	Mar-10	Continuing	TBD	TBD
Testbed Modernization and Licenses	C/Multiple	Northrup Grumman, Raytheon, L3, General Dynamics		3.841	Mar-08	3.550	Mar-09	3.956	Mar-10	Continuing	TBD	TBD
DIB Management, Migration & Interoperability	C/Multiple	Raytheon, Integrity Applications		15.559	Apr-08	7.200	Feb-09	7.800	Feb-10	Continuing	TBD	TBD
Commercial Satellite Imagery	C/Multiple	AR Gov't Systems Group		2.690	Mar-08	2.700	Jan-09	2.900	Jan-10		8.290	
Common Imagery Processor (CIP)	C/Multiple	Northrup Grumman		0.000	Nov-08						0.000	
Advanced Architecture Design (Congressional Add)	C/Multiple	US Army		0.795	Jul-08						0.795	
Subtotal Product Development			289.094	87.872		93.974		70.513		Continuing	TBD	TBD
Remarks:												
(U) Total Cost			289.094	87.872		93.974		70.513		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0305208F Distributed Common  
Ground Systems

PROJECT NUMBER AND TITLE  
4826 Common Imagery Ground /  
Surface Systems

# AF DCGS Schedule

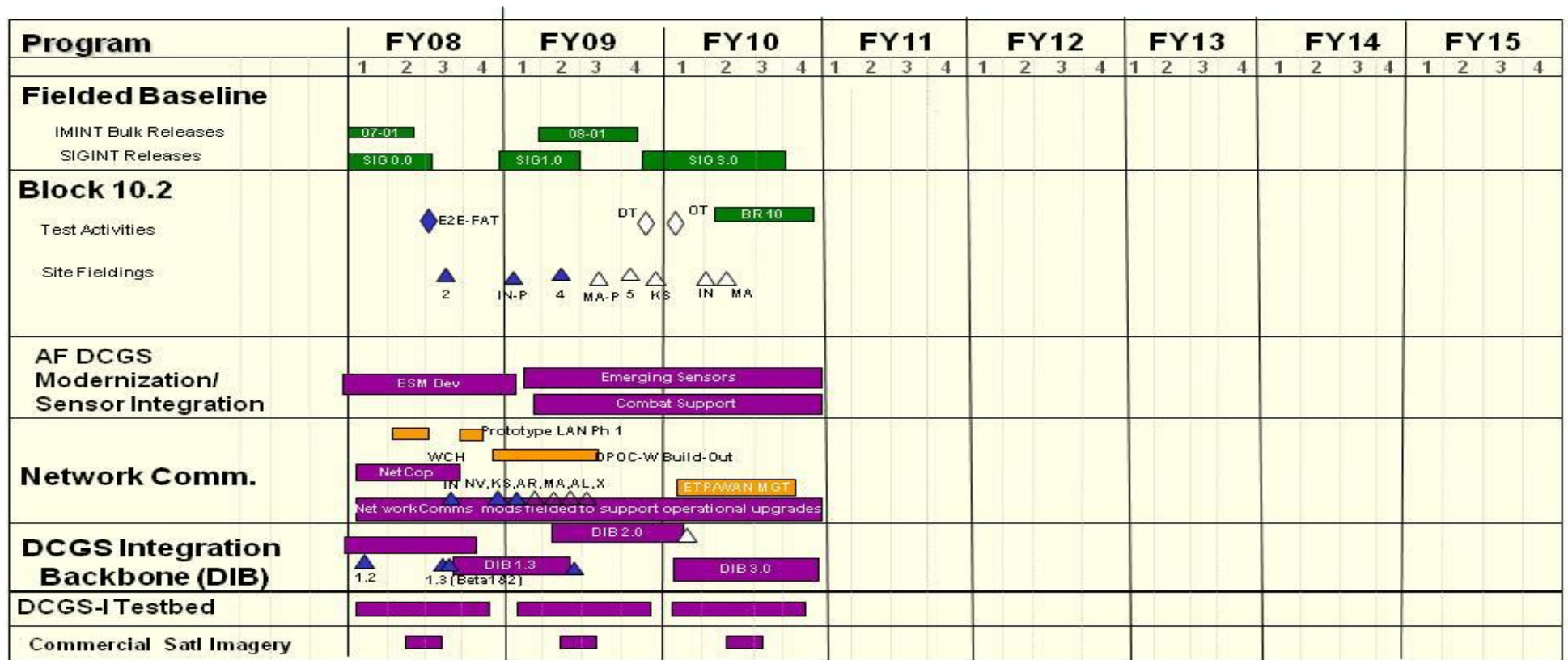




Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0305208F Distributed Common Ground Systems</b>	PROJECT NUMBER AND TITLE <b>4826 Common Imagery Ground / Surface Systems</b>
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(U) <u>Schedule Profile</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Block 10.2 End-to-End Factory Acceptance Test	3Q		
(U) Block 10.2 Developmental and Operational Testing		4Q	1Q
(U) Block 10.2 Site Fielding	3Q	1-4Q	2Q
(U) Modernization/sensor integration	1-4Q	1-4Q	1-4Q
(U) Network Communications upgrades	1-4Q	1-4Q	1-4Q
(U) DIB Version Release (1.3)		2Q	
(U) DIB Version Release (2.0)			1Q

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>					PE NUMBER AND TITLE <b>0305208F Distributed Common Ground Systems</b>			PROJECT NUMBER AND TITLE <b>5265 Common Imagery Processor (CIP)</b>		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5265 Common Imagery Processor (CIP)	12.458	11.298	12.252	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

FY07 and prior year funding was under Project 4826 of PE 0305208F

**(U) A. Mission Description and Budget Item Justification**

The Common Imagery Processor (CIP) is a major interoperability initiative to develop a common sensor processing element within DCGS-Imagery architecture. The function of the CIP is to accept airborne imagery data, process it into an exploitable image, and output the image to other elements within DCGS-I. Efforts are underway to augment the CIP baseline to process data from upgraded/new sensors.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Continue evolving CIP and its associated architecture to keep pace with growing sensor baseline: new and upgraded sensors. Continue investigation of and implementation of advanced processing tools. (Baseline capability includes Global Hawk, F/A-18, and U-2 sensors.)	12.458	11.298	12.252
(U) Total Cost	12.458	11.298	12.252

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) CIP funding under Project 4826	0.500									

**(U) D. Acquisition Strategy**

The Air Force uses an evolutionary acquisition approach with blocks (increments) and spirals to develop, field, and upgrade the AF DCGS weapon system and structure contracts for the improved capabilities through full and open competition to the maximum extent possible.

UNCLASSIFIED

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>07 Operational System Development</b>				<b>0305208F Distributed Common Ground Systems</b>					<b>5265 Common Imagery Processor (CIP)</b>			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> CIP Software Development	C/CPFF	Northrop Grumman, Baltimore MD		12.058	Jan-08	10.798	Dec-09	11.752	Dec-10	Continuing	TBD	TBD
Subtotal Product Development			0.000	12.058		10.798		11.752		Continuing	TBD	TBD
Remarks:												
(U) <u>Support</u>											0.000	0.000
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>											0.000	0.000
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Management</u> 303 Aeronautical Systems Wing (AESW)	Various	Wright-Patterson AFB, OH		0.400	Jan-08	0.500	Dec-09	0.500		Continuing	TBD	TBD
Subtotal Management			0.000	0.400		0.500		0.500		Continuing	TBD	TBD
Remarks:												
(U)											0.000	0.000
Subtotal			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			0.000	12.458		11.298		12.252		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0305208F Distributed Common  
Ground Systems

PROJECT NUMBER AND TITLE  
5265 Common Imagery Processor  
(CIP)



U.S. AIR FORCE

# CIP Schedule



*Rapidly delivering war-winning capability*

CIP Software Baseline Release	FY2008				FY2009				FY2010				FY2011				FY2012				FY2013				FY2014				FY2015			
	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>
	7.1				7.2		7.3		7.4																							

UNCLASSIFIED

<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>May 2009</b>
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BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0305208F Distributed Common Ground Systems</b>	PROJECT NUMBER AND TITLE <b>5265 Common Imagery Processor (CIP)</b>
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	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) <b><u>Schedule Profile</u></b>			
(U) CIP 7.1 Software Release	1Q		
(U) CIP 7.2 Software Release		1Q	
(U) CIP 7.3 Software Release		3Q	
(U) CIP 7.4 Software Release			1Q
(U) CIP Software Release			3Q

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>May 2009</b>
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BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0305219F PREDATOR DEVELOPMENT/FIELDING</b>
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	37.642	36.906	18.101	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5143 Predator	37.642	36.906	18.101	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

FY 2010 funding totals do not include \$1.4M requested for Overseas Contingency Operations.

FY2009 funding totals include \$12.4M in Congressional Adds.

**(U) A. Mission Description and Budget Item Justification**

The basic MQ-1 system consists of the aircraft, a control station, communications equipment, support equipment, simulator and training devices, Readiness Spares Packages (RSP), technical data/training, and personnel required to operate, maintain, and sustain the system. This funding supports development and enhancements to the Predator weapon system to include aircraft, Ground Control Stations, sensors, communication equipment, training systems and support elements. The system is designed to be modular and open-ended: mission-specific equipment is employed in a 'plug-and-play' mission kit concept allowing specific aircraft and control station configurations to be tailored to fit mission needs.

The MQ-1 aircraft is a single-engine, propeller-driven, unmanned aerial system (UAS) designed to operate over-the-horizon at medium altitude for long endurance sorties. The aircraft is designed to provide real-time Intelligence, Surveillance, Reconnaissance, and Target Acquisition (ISR TA), and attack capability to aggressively prosecute Time Sensitive Targets (TST). The MQ-1 will operate primarily at medium altitudes, integrating with joint aerospace, ground, and maritime forces as well as coalition and Allied forces, to execute combatant commander priority missions. The aircraft carries a Multi-spectral Targeting System (MTS) (a sensor turret that incorporates electro-optical (EO), Infra-Red (IR), laser designator, and IR illuminator) capable of transmitting real-time motion imagery throughout the operational theater. The program will develop and integrate Target Location Accuracy and Metric Sensor improvements. Additionally, the aircraft is multi-configurable to carry either a Synthetic Aperture Radar (SAR) or Hellfire laser-guided missiles. The program plans to develop a capability for Ka-band MILSATCOM and Mode S. Major changes will be classified as distinct blocks or Mission Design Series updates. Activities also include studies and analysis to support both current program planning and execution and future program planning.

The Ground Control Station (GCS) functions as the aircraft cockpit and can control the aircraft either within line-of-sight (LOS) or beyond LOS (BLOS) via a combination of satellite relay and terrestrial communications. The GCS is either mobile to support forward operating locations or fixed at a facility to support Remote Split Operations (RSO). The GCS has the capability to perform mission planning; provide a means for manual control, and a GCS configuration to allow control of multiple aircraft and payloads; allow personnel to launch, recover, and monitor aircraft, payloads, and system communications status; secure data links to receive payload sensor data and command links; monitor threats to the aircraft; display common operation picture; and provide support functions. Additionally, GCS allows for servicing, systems checks, maintaining, launching, and recovering aircraft under LOS control for hand-off to a mobile or fixed facility GCS. The GCS will continue to evolve and upgrade its capabilities to keep pace with MQ-1 aircraft capabilities and the missions they perform.

This program is budget activity 7, Operational Systems Development, because it involves Air Force R&D to field a highly capable operational system and provide

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305219F PREDATOR DEVELOPMENT/FIELDING

essential operational capabilities.

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	33.781	24.773	21.039
(U) Current PBR/President's Budget	37.642	36.906	18.101
(U) Total Adjustments	3.861	12.133	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.267	
Congressional Increases		12.400	
Reprogrammings	3.861		
SBIR/STTR Transfer			

(U) **Significant Program Changes:**

FY09 \$12.4M Congressional increase includes; \$6M for sense and avoid work, \$4M for Center for UAV Excellence Education, and \$2.4M for PMATS upgrade  
 RDT&E funding decrease between FY09 and FY10 is result of stopping MQ-1 production after FY09.



**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>				<b>PE NUMBER AND TITLE</b> <b>0305219F PREDATOR</b> <b>DEVELOPMENT/FIELDING</b>				<b>PROJECT NUMBER AND TITLE</b> <b>5143 Predator</b>		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5143 Predator	37.642	36.906	18.101	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

FY 2010 funding totals do not include \$1.4M requested for Overseas Contingency Operations.

FY2009 funding totals include \$12.4M in Congressional Adds.

**(U) A. Mission Description and Budget Item Justification**

The basic MQ-1 system consists of the aircraft, a control station, communications equipment, support equipment, simulator and training devices, Readiness Spares Packages (RSP), technical data/training, and personnel required to operate, maintain, and sustain the system. This funding supports development and enhancements to the Predator weapon system to include aircraft, Ground Control Stations, sensors, communication equipment, training systems and support elements. The system is designed to be modular and open-ended: mission-specific equipment is employed in a 'plug-and-play' mission kit concept allowing specific aircraft and control station configurations to be tailored to fit mission needs.

The MQ-1 aircraft is a single-engine, propeller-driven, unmanned aerial system (UAS) designed to operate over-the-horizon at medium altitude for long endurance sorties. The aircraft is designed to provide real-time Intelligence, Surveillance, Reconnaissance, and Target Acquisition (ISR TA), and attack capability to aggressively prosecute Time Sensitive Targets (TST). The MQ-1 will operate primarily at medium altitudes, integrating with joint aerospace, ground, and maritime forces as well as coalition and Allied forces, to execute combatant commander priority missions. The aircraft carries a Multi-spectral Targeting System (MTS) (a sensor turret that incorporates electro-optical (EO), Infra-Red (IR), laser designator, and IR illuminator) capable of transmitting real-time motion imagery throughout the operational theater. The program will develop and integrate Target Location Accuracy and Metric Sensor improvements. Additionally, the aircraft is multi-configurable to carry either a Synthetic Aperture Radar (SAR) or Hellfire laser-guided missiles. The program plans to develop a capability for Ka-band MILSATCOM and Mode S. Major changes will be classified as distinct blocks or Mission Design Series updates. Activities also include studies and analysis to support both current program planning and execution and future program planning.

The Ground Control Station (GCS) functions as the aircraft cockpit and can control the aircraft either within line-of-sight (LOS) or beyond LOS (BLOS) via a combination of satellite relay and terrestrial communications. The GCS is either mobile to support forward operating locations or fixed at a facility to support Remote Split Operations (RSO). The GCS has the capability to perform mission planning; provide a means for manual control, and a GCS configuration to allow control of multiple aircraft and payloads; allow personnel to launch, recover, and monitor aircraft, payloads, and system communications status; secure data links to receive payload sensor data and command links; monitor threats to the aircraft; display common operation picture; and provide support functions. Additionally, GCS allows for servicing, systems checks, maintaining, launching, and recovering aircraft under LOS control for hand-off to a mobile or fixed facility GCS. The GCS will continue to evolve and upgrade its capabilities to keep pace with MQ-1 aircraft capabilities and the missions they perform.

This program is budget activity 7, Operational Systems Development, because it involves Air Force R&D to field a highly capable operational system and provide essential operational capabilities.

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0305219F PREDATOR DEVELOPMENT/FIELDING</b>	<b>PROJECT NUMBER AND TITLE</b> <b>5143 Predator</b>
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<b>(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) MQ-1 Pre-planned Product Improvement. Includes advanced capabilities (such as multiple aircraft control/operations), engine upgrades, sensor and radar development/integration, quick reaction capabilities, payload development/integration, weaponization and experimentation, data link upgrades (including encryption and tactical common data link (TCDL)), mission planning, simulator/training devices, and ground station and communication equipment development/upgrades.	15.183	16.824	9.589
(U) Developmental and Operational Test support	0.062	1.084	0.900
(U) MQ-1 TLA/Metric Sensor	0.797	4.203	3.543
(U) Sense and Avoid for Predator (Congressional Add)	5.000	6.000	
(U) Center for Defense UAV Education (Congressional Add)	3.200	4.000	
(U) Integrator UAS Advanced Concept Development (Congressional Add)	3.500		
(U) Ka Migration		2.395	4.069
(U) Mode S			
(U) PMATS (GWOT and Congressional Add)	9.900	2.400	
(U) Total Cost	37.642	36.906	18.101

FY2009 funding totals include \$12.4M in Congressional Adds.

<b>(U) <u>C. Other Program Funding Summary (\$ in Millions)</u></b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to Complete</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>		
(U) Other APPN										
(U) Aircraft Procurement, AF (PE 0305219F)	299.220	377.674	0.000						TBD	TBD
(U) Aircraft Modification, AF (PE 0305219F)	52.387	148.128	126.128						TBD	TBD

**(U) D. Acquisition Strategy**  
The MQ-1 Predator system will be acquired sole-source with General Atomics-ASI as the prime contractor.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0305219F PREDATOR</b> <b>DEVELOPMENT/FIELDING</b>	<b>PROJECT NUMBER AND TITLE</b> <b>5143 Predator</b>
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<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
<u>(U) Product Development</u> MQ-1/MQ-9 Development	Various	General Atomics-ASI, Rancho Bernardo CA		15.183	Feb-09	16.824	Feb-09	9.589	Mar-10	Continuing	TBD	TBD
Target Location Accuracy	Various	Raytheon, McKinney TX		0.797	Sep-08	4.203	Jan-09	3.543	Dec-09	Continuing	TBD	TBD
Congressional Adds	Various	Various		11.700	Dec-08	12.400	Jun-09				24.100	TBD
PMATS GWOT Supplemental	CPIF	L3 Comm, Salt Lake City		9.900	Feb-09						9.900	
Ka Migration	CPFF	L3 Comm, Salt Lake City				2.395	May-09	4.069	May-09	Continuing	TBD	TBD
Mode S	CPFF	General Atomics-ASI, Rancho Bernardo CA									0.000	TBD
Subtotal Product Development			0.000	37.580		35.822		17.201		Continuing	TBD	TBD
Remarks:												
<u>(U) Test &amp; Evaluation</u> Development and Operational Test Support	Various	Various		0.062	Oct-07	1.084	May-09	0.900	Mar-10	Continuing	TBD	TBD
Subtotal Test & Evaluation			0.000	0.062		1.084		0.900		Continuing	TBD	TBD
Remarks:												
<u>(U)</u> Subtotal			0.000	0.000		0.000		0.000			0.000	0.000
Remarks:												
<u>(U)</u> Total Cost			0.000	37.642		36.906		18.101		Continuing	TBD	TBD
Prior to FY08 MQ-1 and MQ-9 costs combined.												

Exhibit R-4, RDT&E Schedule Profile

DATE  
May 2009

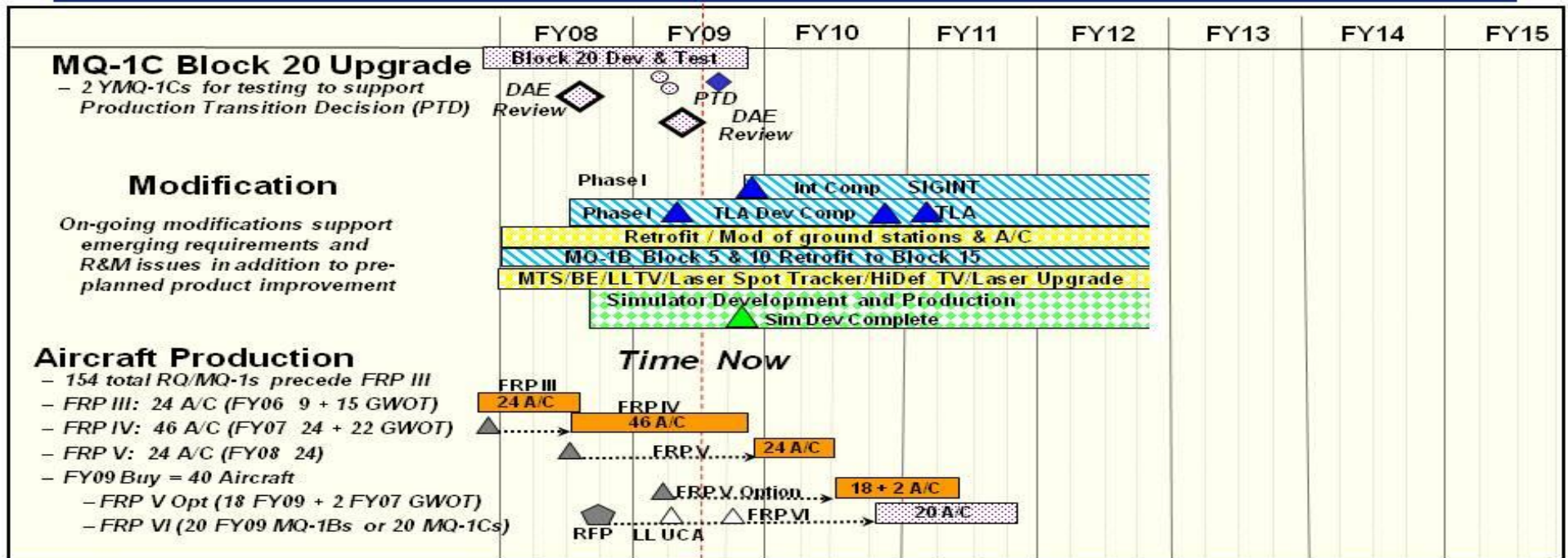
BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0305219F PREDATOR  
DEVELOPMENT/FIELDING

PROJECT NUMBER AND TITLE  
5143 Predator



# MQ-1 Predator Schedule



AVC: Aircraft      GCS: Ground Control Station      PPDL: Predator Primary Data Link      TCCL: Tactical Common Data Link  
 MTS: Multispectral Targeting Sensor      TLA: Target Location Accuracy      BE: Bore sight Enhancement      LLTV: Low Light TV

MQ-1B Block 15 Prod Deliveries     
  Retrofit / Modifications     
  Modification Activities     
  Simulator Activities     
  Contract Award     
  Production Transition Decision

Two YMQ-1C Block 20 Deliveries

FY10 Staffer Brief

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**Exhibit R-4a, RDT&E Schedule Detail**

DATE

**May 2009**

BUDGET ACTIVITY

**07 Operational System Development**

PE NUMBER AND TITLE

**0305219F PREDATOR  
DEVELOPMENT/FIELDING**

PROJECT NUMBER AND TITLE

**5143 Predator**

**(U) Schedule Profile**

FY 2008

FY 2009

FY 2010

- (U) Target Location Accuracy Phase 1 Complete
- (U) MQ-1 Simulator Development Complete
- (U) Improved Target Location Accuracy Development Complete
- (U) SIGINT Payload Integration Complete
- (U) Target Location Accuracy Deliveries Start

2Q  
4Q  
  
4Q  
3Q

4Q

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>May 2009</b>
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BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0305220F GLOBAL HAWK DEVELOPMENT/FIELDING</b>
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	274.729	310.664	317.316	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5144 Global Hawk	274.729	268.564	245.415	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
RTIP MP-RTIP	0.000	42.100	71.901	0.000	0.000	0.000	0.000	0.000	0.000	0.000

FY08 funding totals do not include \$0.737M in supplemental funding.

**(U) A. Mission Description and Budget Item Justification**

The Global Hawk System provides high altitude, deep look, long endurance intelligence, surveillance, and reconnaissance (ISR) capability that compliments space and other airborne collectors during peacetime, crisis, and war-fighting scenarios.

This funding is procuring the highly capable Global Hawk System, which is comprised of aircraft, payloads, ground segment, and support segment. The aircraft is an autonomous, high altitude, long endurance, unmanned aircraft system (UAS). The RQ-4A is an imagery-intelligence (IMINT) UAS designed to employ 2000 pounds of payload. The RQ-4A has one configuration known as the Block 10. The Block 10 employs an IMINT system comprised of a synthetic aperture radar (SAR) sensor and an electro-optical (EO) / infrared (IR) sensor. These three sensors are called the integrated sensor suite (ISS). The RQ-4B UAS is designed to employ 3000 pounds of payload and enable multi-intelligence (multi-INT) collecting. The RQ-4B has three configurations: Block 20, Block 30, and Block 40. The Block 20 will employ upgraded SAR and EO/IR sensors known as the enhanced ISS (EISS) in an IMINT only configuration. The Block 30 will employ the same EISS sensors as the Block 20 and will also integrate a wide spectrum signals intelligence (SIGINT) sensor called the Advanced Signals Intelligence Program (ASIP) sensor used simultaneously to create a multi-INT platform. The Block 40 will integrate the multi-platform radar technology insertion program (MP-RTIP) radar sensor, and currently plans to only carry the MP-RTIP sensor. The user will ultimately determine the optimal mix of quantities and payloads for each aircraft configuration based on operational requirements. The ground station (GS) includes the mission control element (MCE) and the launch and recovery element (LRE). The support segment includes aerospace ground equipment, tech orders, spares, support equipment, and training to enable operation of the Global Hawk System.

The Global Hawk program went through a Title 10, Section 2433 review in 2006, due to a unit cost breach (informally known as Nunn-McCurdy breach). The Department certified the program to Congress on June 5th, 2006. As a result of the review, the Department directed a program restructure to slow development and cap the low rate initial production (LRIP) at 5 per year to reduce risk. LRIP will remain at 5 per year until successful completion of the initial operational test and evaluation (IOT&E).

When judged feasible and affordable, this program will participate in the development, testing, and implementation of international standards (to include NATO standardization agreements) to enhance joint, allied, and coalition interoperability.

The MP-RTIP Program was established to develop a family of modular, scalable next generation sensors for multiple platforms to support network centric operations with integrated Command and Control Intelligence, Surveillance and Reconnaissance (C2ISR) capability.

The E-10A Program was terminated in Feb 07 with amended direction in May 07 that authorized limited risk reduction of Battle Management Command and Control

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

May 2009

## BUDGET ACTIVITY

**07 Operational System Development**

## PE NUMBER AND TITLE

**0305220F GLOBAL HAWK DEVELOPMENT/FIELDING**

(BMC2) Mission Execution, BMC2 Kill Chain and Wide Area Surveillance (WAS) Radar Hardware verification. The Global Hawk MP-RTIP continues under the Global Hawk PE.

Future MP-RTIP studies/development insertion-- includes concept exploration, program definition/risk reduction, sensor technology insertion/development. Also includes continued support improvement and implementation of Command and Control, Intelligence, Surveillance and Reconnaissance (C2ISR) capabilities enabling the joint air and missile defense architecture joint decisive operations and the AEF Task Force CONOPS. Conduct limited risk reduction activities on BMC2 Mission Execution and BMC2 Kill Chain, and MP-RTIP WAS Radar Hardware Verification.

MP-RTIP will also support NATO Alliance Ground Surveillance (AGS) conceptual design and early development activities under the Global Hawk PE.

This program is budget activity 7, Operational Systems Development, because it utilizes Air Force R&D to develop a highly capable operational system.

**(U) B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	275.479	284.292	243.947
(U) Current PBR/President's Budget	274.729	310.664	317.316
(U) Total Adjustments	-0.750	26.372	
(U) Congressional Program Reductions		-15.000	
Congressional Rescissions		-0.843	
Congressional Increases		42.215	
Reprogrammings	-0.750		
SBIR/STTR Transfer			

**(U) Significant Program Changes:**

In FY08, \$0.737M was added as a GWOT supplemental for imagery and shading fixes. Additionally the program office initiated Below Threshold Reprogrammings for ASIP Flight Test Extension (\$9.2M) and Army Sentinel Radar (\$.750M)

In FY09, the program received a Congressional reduction of \$15M and \$42.215M was transferred from the E-10 Line to the Global Hawk PE.

In FY2010 \$25.79M was added by the Air Force for MP-RTIP Depot, MP-RTIP program office support, and the re-architecture of the RQ-4 ground station as part of the FY10 POM. Additionally, Program Decision Memorandums added \$76M for MP-RTIP Mode development and integration and transferred \$20M from the Global Hawk PE to the DoD UAS Airspace Integration RDT&E line for Sense and Avoid.



## Exhibit R-2a, RDT&amp;E Project Justification

DATE

May 2009

BUDGET ACTIVITY <b>07 Operational System Development</b>				PE NUMBER AND TITLE <b>0305220F GLOBAL HAWK DEVELOPMENT/FIELDING</b>			PROJECT NUMBER AND TITLE <b>5144 Global Hawk</b>			
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5144 Global Hawk	274.729	268.564	245.415	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

FY08 funding total includes \$0.737M in supplemental funding.

(U) **A. Mission Description and Budget Item Justification**

The Global Hawk System provides high altitude, deep look, long endurance intelligence, surveillance, and reconnaissance (ISR) capability that compliments space and other airborne collectors during peacetime, crisis, and war-fighting scenarios.

This funding is procuring the highly capable Global Hawk System, which is comprised of aircraft, payloads, ground segment, and support segment. The aircraft is an autonomous, high altitude, long endurance, unmanned aircraft system (UAS). The RQ-4A is an imagery-intelligence (IMINT) UAS designed to employ 2000 pounds of payload. The RQ-4A has one configuration known as the Block 10. The Block 10 employs an IMINT system comprised of a synthetic aperture radar (SAR) sensor and an electro-optical (EO) / infrared (IR) sensor. These three sensors are called the integrated sensor suite (ISS). The RQ-4B UAS is designed to employ 3000 pounds of payload and enable multi-intelligence (multi-INT) collecting. The RQ-4B has three configurations: Block 20, Block 30, and Block 40. The Block 20 will employ upgraded SAR and EO/IR sensors known as the enhanced ISS (EISS) in an IMINT only configuration. The Block 30 will employ the same EISS sensors as the Block 20 and will also integrate a wide spectrum signals intelligence (SIGINT) sensor called the Advanced Signals Intelligence Program (ASIP) sensor used simultaneously to create a multi-INT platform. The Block 40 will integrate the multi-platform radar technology insertion program (MP-RTIP) radar sensor, and currently plans to only carry the MP-RTIP sensor. The user will ultimately determine the optimal mix of quantities and payloads for each aircraft configuration based on operational requirements. The ground station (GS) includes the mission control element (MCE) and the launch and recovery element (LRE). The support segment includes aerospace ground equipment, tech orders, spares, support equipment, and training to enable operation of the Global Hawk System. Automatic Test System will develop the capability of the Versatile Automatic Test System (VDATS) for Global Hawk application. The Integrated Life Cycle Management (ILCM) executive agent for Automatic Test Systems (ATS) is focused on reducing weapon system unique ATS through replacement with a Common Versatile ATS tester that can perform similar test across multiple weapons platforms.

The Global Hawk program went through a Title 10, Section 2433 review in 2006, due to a unit cost breach (informally known as Nunn-McCurdy breach). The Department certified the program to Congress on June 5th, 2006. As a result of the review, the Department directed a program restructure to slow development and cap the low rate initial production (LRIP) at 5 per year to reduce risk. LRIP will remain at 5 per year until successful completion of the initial operational test and evaluation (IOT&E).

This program is budget activity 7, Operational Systems Development, because it utilizes Air Force R&D to develop a highly capable operational system.

When judged feasible and affordable, this program will participate in the development, testing, and implementation of international standards (to include NATO standardization agreements) to enhance joint, allied, and coalition interoperability. Activities will also include studies and analysis to support both current program planning and execution and future program planning.

## UNCLASSIFIED

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

May 2009

BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0305220F GLOBAL HAWK DEVELOPMENT/FIELDING</b>	PROJECT NUMBER AND TITLE <b>5144 Global Hawk</b>
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(U) <b>B. Accomplishments/Planned Program (\$ in Millions)</b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Continue modernization and related tasks, to satisfy Capabilities Description Document requirements.			
(U) Aircraft	23.704	14.417	8.855
(U) Payloads	56.731	33.239	56.163
(U) Ground Segment	18.897	27.453	26.127
(U) Communications	14.298	24.312	10.318
(U) Support Segment	47.753	39.460	49.539
(U) Block Load (System Engineering, Program Management, Flight test support, and software maintenance)	76.590	98.400	72.544
(U) AFFTC	11.823	13.826	10.546
(U) Other Government Costs & Mission Support	20.680	17.457	11.323
(U) Fielding Strategy Acceleration	4.253		
(U) Automatic Test System Development			
(U) Total Cost	274.729	268.564	245.415

(U) **C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) * Airborne SIGINT										
Enterprise, AF RDT&E (PE 34260F)	10.817	41.803	29.099						Continuing	TBD
(U) Joint Tactical Radio System, AF RDT&E (PE 27423F)	4.122	1.307	19.534						Continuing	TBD
(U) AF MILCON			31.300							
(U) AF O&M	108.445	62.199	89.084						Continuing	TBD
(U) AF MILPERS	47.799	54.530	81.620						Continuing	TBD
(U) Aircraft Procurement, APPN 10 AF (HAE UAV)	576.823	710.004	667.824						Continuing	TBD
(U) Aircraft Procurement, APPN 11 AF (HAE UAV)	25.756	103.657	134.864						Continuing	TBD
(U) Other Procurement, 3080 (HAE UAV)	0.697	0.297								
(U) Weapons System Initial Spares	6.953									

R-1 Line Item No. 207

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Project 5144

Exhibit R-2a (PE 0305220F)

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## Exhibit R-2a, RDT&amp;E Project Justification

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305220F GLOBAL HAWK  
DEVELOPMENT/FIELDING

PROJECT NUMBER AND TITLE

5144 Global Hawk

(U) D. Acquisition Strategy

The Global Hawk program uses a modernization strategy to provide the warfighter with a near-term, combat capability with increased, time-phased capability improvements as technology and risk achieve satisfactory levels.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>07 Operational System Development</b>				<b>0305220F GLOBAL HAWK DEVELOPMENT/FIELDING</b>					<b>5144 Global Hawk</b>			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> EMD	SS/CPAF	Northrop Grumman Integrated Systems, San Diego, CA	645.763	235.063	Feb-08	231.219	Feb-09	214.908	Feb-10	Continuing	TBD	TBD
Subtotal Product Development			645.763	235.063		231.219		214.908		Continuing	0.000 TBD	TBD
Remarks:												
(U) <u>Support</u> Contractor Program Support	SS/CPFF	Northrop Grumman Integrated Systems, San Diego, CA	9.751	6.071	Jan-08	5.418	Jan-09	6.966	Jan-10	Continuing	TBD	TBD
Government Program Support	Various	Various Government Orgs.	14.201	9.683	Dec-07	5.965	Dec-08	5.097	Dec-09	Continuing	TBD	TBD
Subtotal Support			23.952	15.754		11.383		12.063		Continuing	TBD	TBD
Remarks:												
(U) <u>Test &amp; Evaluation</u> Flight Test & Evaluation	PO	AFFTC, Edwards	29.612	11.818	Jan-08	14.383	Jan-09	10.936	Jan-10	Continuing	TBD	TBD
Subtotal Test & Evaluation			29.612	11.818		14.383		10.936		Continuing	TBD	TBD
Remarks:												
(U) <u>Management</u> A&AS	PR	Various Contractors, Dayton, OH	21.421	10.276	Nov-07	9.502	Nov-08	6.427	Nov-09	Continuing	TBD	TBD
Other Government Organizations	Various	Various, Dayton, OH	10.471	1.818		2.077		1.081		Continuing	0.000 TBD	TBD
Subtotal Management			31.892	12.094		11.579		7.508		Continuing	TBD	TBD
Remarks:												
(U) Total Cost			731.219	274.729		268.564		245.415		Continuing	TBD	TBD

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Project 5144

Exhibit R-3 (PE 0305220F)

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

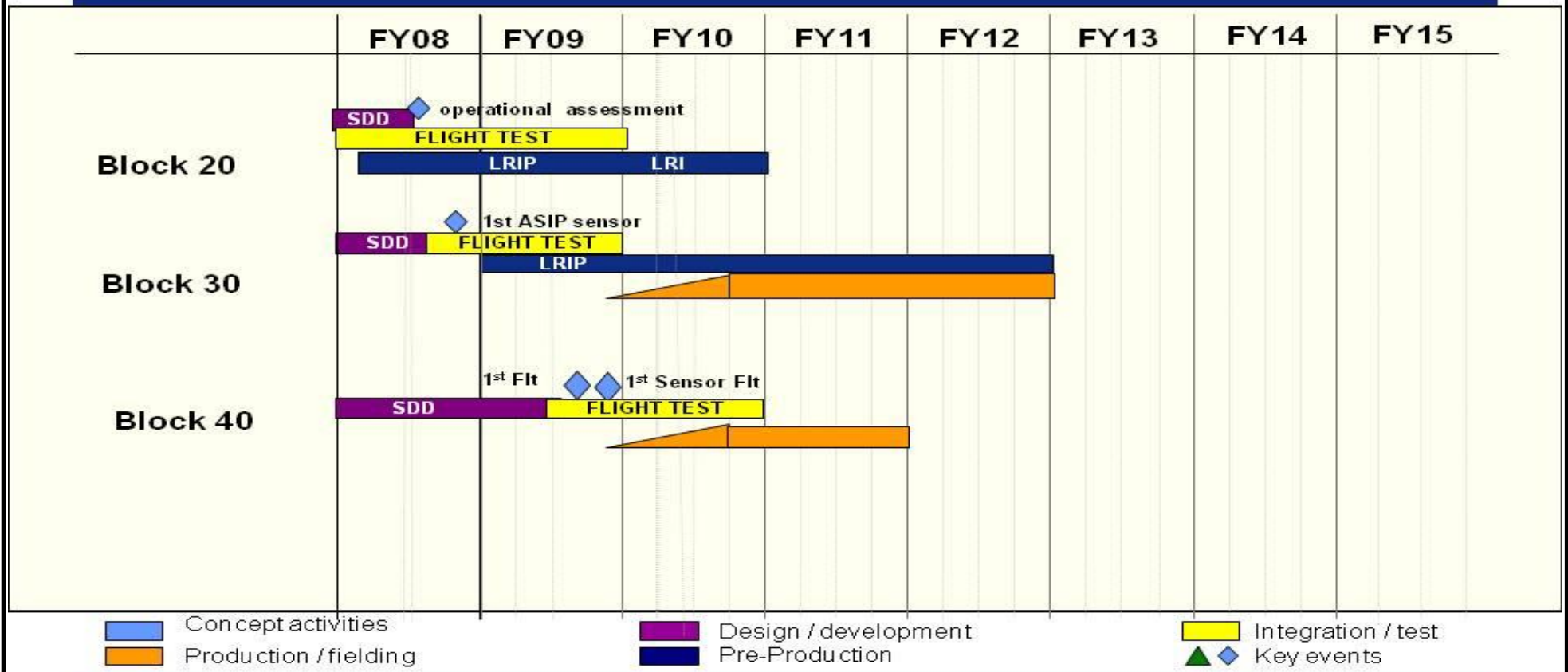
BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0305220F GLOBAL HAWK  
DEVELOPMENT/FIELDING

PROJECT NUMBER AND TITLE  
5144 Global Hawk



# Integrated Block Program Schedule



PB10 R-Docs

Depicted by installation/production flow

1

Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305220F GLOBAL HAWK  
DEVELOPMENT/FIELDING

PROJECT NUMBER AND TITLE

5144 Global Hawk

(U) Schedule Profile

- (U) Block 20 Operational Assessment
- (U) Block 30 ASIP development test flights begin
- (U) Block 40 First Flight
- (U) Block 40 First Sensor Flight

FY 2008

- 3Q
- 4Q

FY 2009

- 3Q
- 4Q

FY 2010

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>				PE NUMBER AND TITLE <b>0305220F GLOBAL HAWK DEVELOPMENT/FIELDING</b>			PROJECT NUMBER AND TITLE <b>RTIP MP-RTIP</b>			
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
RTIP MP-RTIP	0.000	42.100	71.901	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

PE27450 (MP-RTIP) funded FY07 and FY08 MP-RTIP RDTE. FY09 funding was transferred to PE35220F (RQ-4) and in FY09 this funding was moved into this BPAC.

**(U) A. Mission Description and Budget Item Justification**

The MP-RTIP sensor is designed to provide next generation capabilities to support network centric operations with integrated Command and Control Intelligence, Surveillance and Reconnaissance (C2ISR) capability.

The funding supports all MP-RTIP design, development, and integration onto the Global Hawk Block 40. Future MP-RTIP studies and development include maritime modes, airborne modes, electronic protection, and other advanced capabilities. The funding also improves and implements Command and Control, Intelligence, Surveillance and Reconnaissance (C2ISR) capabilities enabling AEF Task Force CONOPS. This effort also provides for funding of limited risk reduction activities on BMC2 Mission Execution and BMC2 Kill Chain. Other activities will include studies and analysis to support both current program planning and execution and future program planning.

Global Hawk Block 40 carrying MP-RTIP will also support NATO Alliance Ground Surveillance (AGS) conceptual design and early development activities.

This program is budget activity 7, Operational Systems Development, because it utilizes Air Force R&D to develop a highly capable operational system.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Payloads (MP-RTIP)		31.793	62.901
(U) Other Government Costs and Support		10.307	9.000
(U) Total Cost	0.000	42.100	71.901

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) none										

**(U) D. Acquisition Strategy**

The MP-RTIP program supports the acquisition of Global Hawk by providing sensors for the Global Hawk Block 40 platforms.

UNCLASSIFIED

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0305220F GLOBAL HAWK DEVELOPMENT/FIELDING</b>	<b>PROJECT NUMBER AND TITLE</b> <b>RTIP MP-RTIP</b>
--	--	--

(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> MP-RTIP	SS/CPAF	Northrop Grumman Integrated Systems, San Diego, CA				31.793		62.901	Nov-09	Continuing	TBD	TBD
Subtotal Product Development Remarks:			0.000	0.000		31.793		62.901		Continuing	TBD	TBD
(U) <u>Support</u>											0.000	0.000
Subtotal Support Remarks:			0.000	0.000		0.000		0.000		0.000	0.000	0.000
(U) <u>Test &amp; Evaluation</u>	MIPR	Edwards, CA				2.555				Continuing	TBD	TBD
Subtotal Test & Evaluation Remarks:			0.000	0.000		2.555		0.000		Continuing	TBD	TBD
(U) <u>Management</u> A&AS	PR	Various Contractors, Boston MA				7.051		3.000		Continuing	TBD	TBD
Other Gov't Support	Various	Various, Boston MA				0.701		6.000			6.701	
Subtotal Management Remarks:			0.000	0.000		7.752		9.000		Continuing	TBD	TBD
(U) Total Cost			0.000	0.000		42.100		71.901		Continuing	TBD	TBD



Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

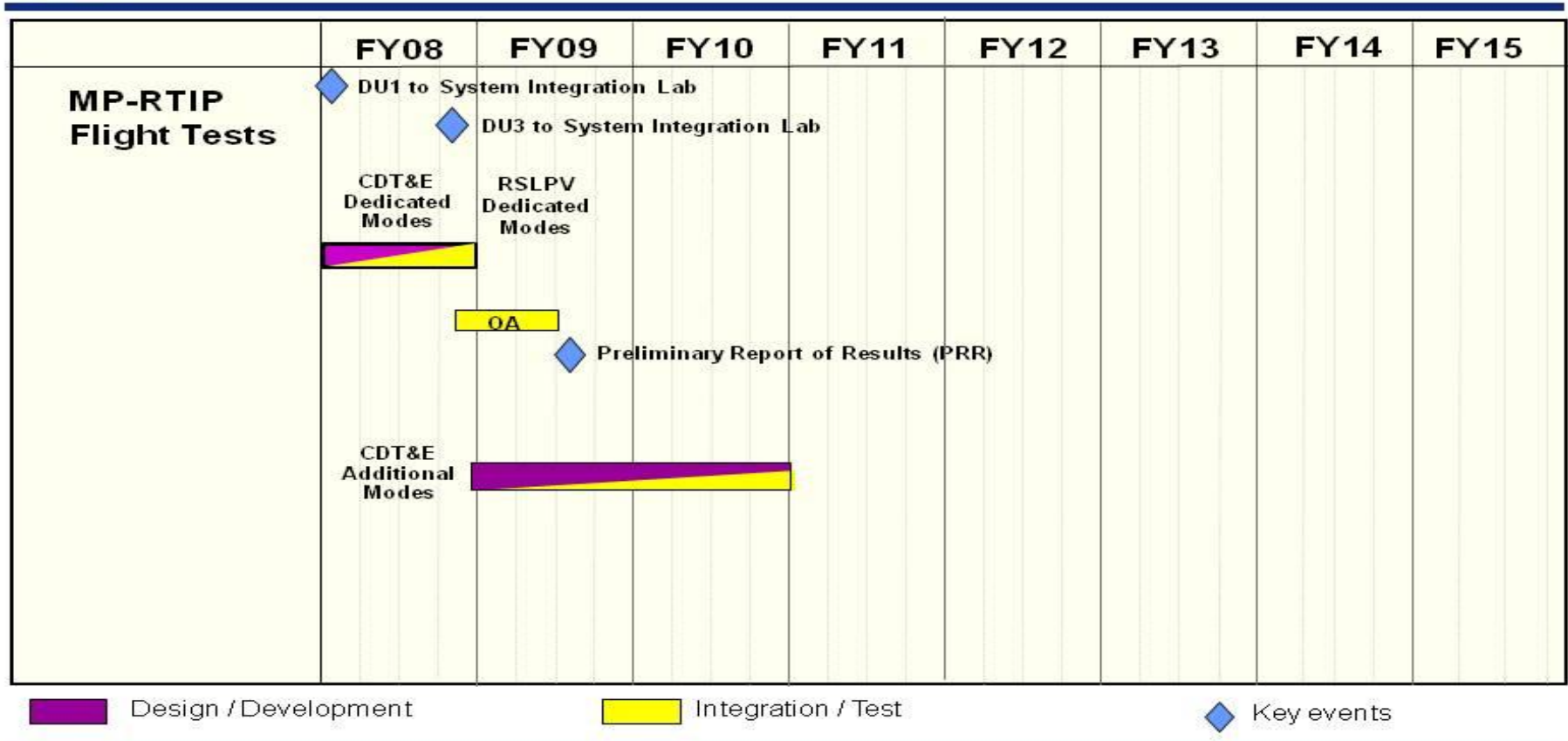
BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0305220F GLOBAL HAWK  
DEVELOPMENT/FIELDING

PROJECT NUMBER AND TITLE  
RTIP MP-RTIP



*MP-RTIP Schedule*



**PB10 R-Docs**

Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305220F GLOBAL HAWK  
DEVELOPMENT/FIELDING

PROJECT NUMBER AND TITLE

RTIP MP-RTIP

(U) Schedule Profile

(U) MP-RTIP GH DU#1 to System Integration Lab (SIL)

(U) MP-RTIP GH DU#3 to System Integration Lab (SIL)

(U) Operational Assessment

(U) Preliminary Reports of Results (PRR)

(U) CDT&E Additional Modes

FY 2008

FY 2009

FY 2010

1Q

4Q

4Q

3Q

3Q

1-4Q

1-4Q

**UNCLASSIFIED**

PE NUMBER: 0305221F  
 PE TITLE: Network Centric Collaborative Targeting

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0305221F Network Centric Collaborative Targeting</b>
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	12.035	8.783	8.160	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5197 Core Technology	12.035	8.783	8.160	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

**(U) A. Mission Description and Budget Item Justification**

Network Centric Collaborative Targeting (NCCT) is the Air Force program of record for net-centric collaborative intelligence, surveillance and reconnaissance (ISR) operations. NCCT is a networked application that uses machine-to-machine interfaces and Internet Protocol (IP) connectivity to horizontally integrate Battle Management (BM)/Command and Control (C2)/ISR assets and systems to provide timely detection, identification, and geo-location of time-sensitive and high priority targets to combatant commanders and their forces. NCCT develops and deploys the capability to share multi-source, multi-INT sensor-level data, coordinate sensor activity, and provide rapidly correlated results between dissimilar BM/C2/ISR assets, systems and decision-making nodes. NCCT develops and refreshes software and hardware required for net-centric operations. NCCT supports participant program offices with development and fielding of BM/C2/ISR asset, system and decision-making node interfaces.

NCCT Core Technology develops the machine-to-machine hardware and software to horizontally integrate dissimilar BM/C2/ISR assets and systems to include, but is not limited to, RC-135 RIVET JOINT, C-130 SENIOR SCOUT, E-8 Joint Surveillance and Target Attack Radar System (JSTARS), U-2/Distributive Common Ground System (DCGS), Falconer Air and Space Operations Center (AOC), and national systems. NCCT Core Technology includes, but is not limited to, network management software, operations interface, network messages and formats, correlation software and data rules of interaction, NCCT unique security hardware and software items, and platform specific Platform Interface Modules (PIMs). Core technology supports the Systems Integration Lab (SIL) used to test NCCT development, modification and PIMs. Core technology also supports Air Force and Joint experiments, demonstrations, and exercises as necessary.

Information Operations/Battle Management operationalizes the software application suite developed during the Project SUTER series of cross-domain demonstrations to apply Air Force ISR, national agency, space, and Joint capabilities to bridge the gap between tomorrow's advanced networked threats and our ability to train and integrate our forces to fly and fight against these threats. Threat sensor and communication systems are being modified and fielded in compressed timelines as commercial advances are adopted in short (18 month or less) cycles. Project SUTER Software (PSS) attempts to lead turn threat networks by developing, fielding and rapidly transitioning concepts of operations (CONOPs); tactics, techniques and procedures (TTPs); Network Target Playbooks; and capabilities that address ISR and kinetic/non-kinetic networked options at all classification levels. Exercises provide an opportunity to train personnel in combined, distributed operations focused on the "Find, Fix, and Finish" process for high-value targets. Formal assessment and operator critiques, derived during constructive play and live fly/live fire events, will be used to make rapid fielding decisions.

This program is categorized as Budget Activity 7 because it provides for development of technologies in support of operational system development.

Exhibit R-2, RDT&E Budget Item Justification

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305221F Network Centric Collaborative Targeting

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	8.586	8.807	8.716
(U) Current PBR/President's Budget	12.035	8.783	8.160
(U) Total Adjustments	3.449	-0.024	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.024	
Congressional Increases			
Reprogrammings	3.690		
SBIR/STTR Transfer	-0.241		

(U) **Significant Program Changes:**

FY2008 funding reflects a transfer of \$3.690M to support Core Technology development and operational platform fielding

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0305221F Network Centric Collaborative Targeting</b>	<b>PROJECT NUMBER AND TITLE</b> <b>5197 Core Technology</b>
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5197 Core Technology	12.035	8.783	8.160	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

Network Centric Collaborative Targeting (NCCT) is the Air Force program of record for net-centric collaborative intelligence, surveillance and reconnaissance (ISR) operations. NCCT is a networked application that uses machine-to-machine interfaces and Internet Protocol (IP) connectivity to horizontally integrate Battle Management (BM)/Command and Control (C2)/ISR assets and systems to provide timely detection, identification, and geo-location of time-sensitive and high priority targets to combatant commanders and their forces. NCCT develops and deploys the capability to share multi-source, multi-INT sensor-level data, coordinate sensor activity, and provide rapidly correlated results between dissimilar BM/C2/ISR assets, systems and decision-making nodes. NCCT develops and refreshes software and hardware required for net-centric operations. NCCT supports participant program offices with development and fielding of BM/C2/ISR asset, system and decision-making node interfaces.

NCCT Core Technology develops the machine-to-machine hardware and software to horizontally integrate dissimilar BM/C2/ISR assets and systems to include, but is not limited to, RC-135 RIVET JOINT, C-130 SENIOR SCOUT, E-8 Joint Surveillance and Target Attack Radar System (JSTARS), U-2/Distributive Common Ground System (DCGS), Falconer Air and Space Operations Center (AOC), and national systems. NCCT Core Technology includes, but is not limited to, network management software, operations interface, network messages and formats, correlation software and data rules of interaction, NCCT unique security hardware and software items, and platform specific Platform Interface Modules (PIMs). Core technology supports the Systems Integration Lab (SIL) used to test NCCT development, modification and PIMs. Core technology also supports Air Force and Joint experiments, demonstrations, and exercises as necessary.

Information Operations/Battle Management operationalizes the software application suite developed during the Project SUTER series of cross-domain demonstrations to apply Air Force ISR, national agency, space, and Joint capabilities to bridge the gap between tomorrow's advanced networked threats and our ability to train and integrate our forces to fly and fight against these threats. Threat sensor and communication systems are being modified and fielded in compressed timelines as commercial advances are adopted in short (18 month or less) cycles. Project SUTER Software (PSS) attempts to lead turn threat networks by developing, fielding and rapidly transitioning concepts of operations (CONOPs); tactics, techniques and procedures (TTPs); Network Target Playbooks; and capabilities that address ISR and kinetic/non-kinetic networked options at all classification levels. Exercises provide an opportunity to train personnel in combined, distributed operations focused on the "Find, Fix, and Finish" process for high-value targets. Formal assessment and operator critiques, derived during constructive play and live fly/live fire events, will be used to make rapid fielding decisions.

This program is categorized as Budget Activity 7 because it provides for development of technologies in support of operational system development.

Exhibit R-2a, RDT&E Project Justification

DATE

May 2009

BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0305221F Network Centric Collaborative Targeting</b>	PROJECT NUMBER AND TITLE <b>5197 Core Technology</b>
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(U) <b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) NCCT Core Technology Development and Refresh	10.010	6.307	5.799
(U) Technical Support	0.986	1.276	1.181
(U) Management	1.039	1.200	1.180
(U) Total Cost	12.035	8.783	8.160

Activities also include studies and analysis to support both current program planning and execution and future program planning.

(U) <b><u>C. Other Program Funding Summary (\$ in Millions)</u></b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) PE 0305221F, O&M	0.000	5.982	21.321						Continuing	TBD

(U) **D. Acquisition Strategy**

645 Aeronautical Systems Group (645 AESG) at Wright Patterson AFB OH, manages the Cost Plus Fixed Fee contract used to develop NCCT Core Technology. 645 AESG will provide NCCT software and common hardware to systems and platforms for fielding. Individual program management offices may contract directly for development and integration of this capability on their respective systems and platforms (RC-135 RIVET JOINT, C-130 SENIOR SCOUT, EC-130 COMPASS CALL, AF DCGS, AOC, national systems, and any potential systems in the future).

UNCLASSIFIED

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>07 Operational System Development</b>				<b>0305221F Network Centric Collaborative Targeting</b>					<b>5197 Core Technology</b>			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> Core Technology	CPFF	L3 ComCept / Rockwall, TX	6.561	10.010	Dec-07	6.307	Jan-09	5.799	Dec-09	Continuing	TBD	TBD
Subtotal Product Development			6.561	10.010		6.307		5.799		Continuing	TBD	TBD
Remarks:												
(U) <u>Technical Support</u> Security Certification	Various	Various	0.986	0.986	Dec-07	1.276	Jan-09	1.181	Dec-09	Continuing	TBD	TBD
Subtotal Technical Support			0.986	0.986		1.276		1.181		Continuing	TBD	TBD
Remarks:												
(U) <u>Test and Evaluation</u> Operational Test	MIPR	605 TES	0.000	0.000		0.000			Dec-09	Continuing	TBD	TBD
Subtotal Test and Evaluation			0.000	0.000		0.000		0.000		Continuing	TBD	TBD
Remarks:												
(U) <u>Management</u> Program Office	Various	645 AESG / Wright-Patters on AFB, OH	1.039	1.039	Dec-07	1.200	Jan-09	1.180	Dec-09	Continuing	TBD	TBD
Other Government	MIPR	SAF/RCO & USSTRATCO M	0.000	0.000		0.000		0.000		Continuing	TBD	TBD
Subtotal Management			1.039	1.039		1.200		1.180		Continuing	TBD	TBD
Remarks:												
(U) Total Cost			8.586	12.035		8.783		8.160		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE  
May 2009

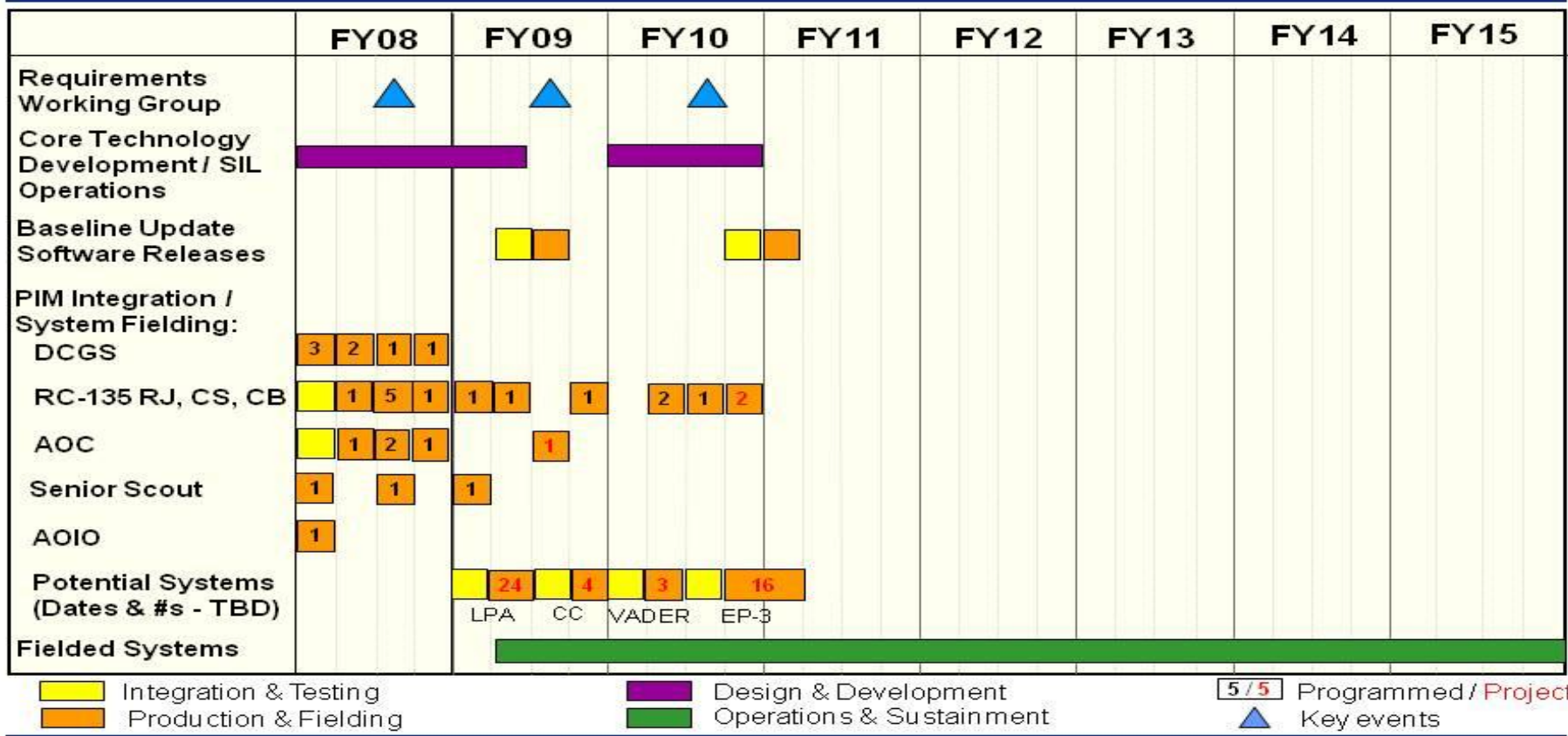
BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0305221F Network Centric Collaborative Targeting

PROJECT NUMBER AND TITLE  
5197 Core Technology



# Network Centric Collaborative Targeting Schedule



FY10 PB



**Exhibit R-4a, RDT&E Schedule Detail**

DATE

**May 2009**

BUDGET ACTIVITY

**07 Operational System Development**

PE NUMBER AND TITLE

**0305221F Network Centric Collaborative Targeting**

PROJECT NUMBER AND TITLE

**5197 Core Technology**

**(U) Schedule Profile**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Continued Core Technology Development and Refinement	1-4Q	3-4Q	1-4Q
(U) Systems Integration Lab Operation	1-4Q	1-4Q	1-4Q
(U) Platform Interface Module (PIM) Integration / Delivery	1Q	1-4Q	1-4Q
(U) Network Controller and Operations Interface / Baseline Upgrade Software Release		2-3Q	4Q

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0305265F GPS III Space Segment</b>
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.000	392.276	815.095	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
A019 GPS IIIA	0.000	392.276	425.380	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
A020 OCX	0.000	0.000	389.715	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

Funding from 2 OCX PEs (0603423F and 0603427F) consolidated into separate BPAC in this PE starting in FY10.

**(U) A. Mission Description and Budget Item Justification**

The Navstar Global Positioning System (GPS) is a space based navigation system that fills validated Joint Service requirements for worldwide, accurate, common grid three dimensional positioning/navigation for military aircraft, ships, and ground personnel. The consistent accuracy, unaffected by location or weather and available in real time, significantly improves effectiveness of reconnaissance, weapons delivery, mine countermeasures and rapid deployment for all services. The system is composed of three segments: user equipment (funded under PE 0305164F), space, and a control network. The satellites broadcast high accuracy data using precisely synchronized signals which are received and processed by user equipment installed in military platforms. This equipment computes the platform position and velocity and provides steering vectors to target locations or navigation equipment installed in military platforms. The control segment provides daily updates to the navigation messages broadcast from the satellites to maintain system precision in three dimensions to 16 meters spherical error probable worldwide.

Additionally, GPS supports the United States Nuclear Detonation (NUDET) Detection System (NDS) mission, and provides strategic and tactical support to the following Department of Defense (DoD) missions: Joint Operations by providing capabilities for Positioning, Navigation, and Timing (PNT), Command, Control, Communications, and Intelligence; Special Operations; Military Operations in Urban Terrain; Defense-Wide Mission Support; Air Mobility; and Space Launch Orbital Support.

GPS IIIA is the next generation space vehicle supporting the Navstar GPS constellation. GPS IIIA space vehicles will deliver significant enhancements, including a new L1C (civil) Galileo-compatible signal, enhanced M-code Earth Coverage power, and a growth path to full warfighter capabilities. GPS III received Phase B approval in May 2008 and has begun the preliminary design phase of development (Phase B). Funds in this PE will support research, development, test and evaluation of two GPS IIIA space vehicles and associated simulators through a structured systems engineering approach that matures and delivers space vehicles for launch. The program includes capability maturation and risk reduction efforts to address and mitigate program cost, schedule and technical challenges. Additionally the program also includes engineering studies and analyses, trade studies, system development, test and evaluation efforts, integrated logistics support products, on orbit support, and mission operations in support of civil applications necessary to support efforts to protect U.S. military and allies' use of GPS.

OCX is the next generation GPS control segment which includes, but is not limited to, advanced concept development, systems engineering and analysis, modernized control segment development, training simulators, Integrated Logistics Support (ILS) products, and developmental test resources. The OCX acquisition was established to 1) fly the GPS III satellites, 2) incorporate situational awareness to support Navwar and signal monitoring, and 3) enable mission capability upgrades to support warfighter effect based operations. Funds will support engineering studies and analyses, architectural engineering studies, trade studies, technology needs forecasting, science and technology, technology development, systems engineering, system development, test and evaluation efforts and mission operations in support

Exhibit R-2, RDT&E Budget Item Justification

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305265F GPS III Space Segment

of upgrades and product improvements for military and civil applications necessary to support efforts to protect U.S. military and allies' use of GPS. Additionally, funds will ensure a disciplined Capability Insertion Program plan to meet Joint Requirements Oversight Council (JROC) approved required capabilities.

This program is Budget Activity 7 - Operational System Development

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	0.000	420.342	284.973
(U) Current PBR/President's Budget	0.000	392.276	815.095
(U) Total Adjustments	0.000	-28.066	
(U) Congressional Program Reductions		-27.000	
Congressional Rescissions		-1.066	
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer			

(U) Significant Program Changes:

Funding from 2 OCX PEs (0603423F and 0603427F) consolidated into separate BPAC in this PE starting in FY10. -\$27.000M Congressional reduction to GPS IIIA in FY09 due to contract award delay. -\$1.066 in FY09 for Congressional General Reductions

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>					PE NUMBER AND TITLE <b>0305265F GPS III Space Segment</b>			PROJECT NUMBER AND TITLE <b>A019 GPS IIIA</b>		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
A019 GPS IIIA	0.000	392.276	425.380	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

The Navstar Global Positioning System (GPS) is a space based navigation system that fills validated Joint Service requirements for worldwide, accurate, common grid three dimensional positioning/navigation for military aircraft, ships, and ground personnel. The consistent accuracy, unaffected by location or weather and available in real time, significantly improves effectiveness of reconnaissance, weapons delivery, mine countermeasures and rapid deployment for all services. The system is composed of three segments: user equipment (funded under PE 0305164F), space, and a control network. The satellites broadcast high accuracy data using precisely synchronized signals which are received and processed by user equipment installed in military platforms. This equipment computes the platform position and velocity and provides steering vectors to target locations or navigation equipment installed in military platforms. The control segment provides daily updates to the navigation messages broadcast from the satellites to maintain system precision in three dimensions to 16 meters spherical error probable worldwide.

Additionally, GPS supports the United States Nuclear Detonation (NUDET) Detection System (NDS) mission, and provides strategic and tactical support to the following Department of Defense (DoD) missions: Joint Operations by providing capabilities for Positioning, Navigation, and Timing (PNT), Command, Control, Communications, and Intelligence; Special Operations; Military Operations in Urban Terrain; Defense-Wide Mission Support; Air Mobility; and Space Launch Orbital Support.

GPS IIIA is the next generation space vehicle supporting the Navstar GPS constellation. GPS IIIA space vehicles will deliver significant enhancements, including a new L1C (civil) Galileo-compatible signal, enhanced M-code Earth Coverage power, and a growth path to full warfighter capabilities. GPS III received Phase B approval in May 2008 and has begun the preliminary design phase of development (Phase B). Funds in this PE will support research, development, test and evaluation of two GPS IIIA space vehicles and associated simulators through a structured systems engineering approach that matures and delivers space vehicles for launch. The program includes capability maturation and risk reduction efforts to address and mitigate program cost, schedule and technical challenges. Additionally the program also includes engineering studies and analyses, trade studies, system development, test and evaluation efforts, integrated logistics support products, on orbit support, and mission operations in support of civil applications necessary to support efforts to protect U.S. military and allies' use of GPS.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Continue GPS IIIA Development	0.000	338.300	373.140
(U) Continue System Engineering & Integration (SE&I)	0.000	5.270	6.780
(U) Continue System Engineering and Technical Support	0.000	18.020	15.868
(U) Continue Program Support	0.000	30.686	29.592
(U) Total Cost	0.000	392.276	425.380

Exhibit R-2a, RDT&E Project Justification

DATE  
**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0305265F GPS III Space Segment</b>	PROJECT NUMBER AND TITLE <b>A019 GPS IIIA</b>
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(U) **C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E										
(U) PE 0603421F Global Positioning System (Project 644993; BA-04; R-38)	446.197	0.000	0.000							446.197
(U) PE 0603423F Global Positioning System III Operational Control Segment (Project 64A021; BA-04; R-36)	0.000	306.502	0.000							306.502
(U) Other APPN										
(U) Missile Procurement: PE 030265F, BA-5, P-XX	0.000	0.000	0.000							TBD
(U) Other Procurement: PE 0305265F, BP 83, 836730, P-70	0.000	0.000	0.000							TBD

(U) **D. Acquisition Strategy**

The Air Force is pursuing a "Block" approach to the GPS III next generation space segment to rapidly respond to warfighter capability requirements. The Block acquisition approach utilizes a disciplined systems engineering approach which focuses on mitigating cost and schedule risk through a lower risk incremental delivery of mature technologies. This approach focuses on mission success and on time delivery. The first block of GPS III satellites, GPS IIIA, will have GPS IIF capabilities plus up to a 10 dB increase in military (M-code) signal power, a new LIC civil signal compatible with the European Galileo and a satellite bus capable of supporting Block B and C capability upgrades.

UNCLASSIFIED

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>07 Operational System Development</b>				<b>0305265F GPS III Space Segment</b>					<b>A019 GPS IIIA</b>			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
Block IIIA Development	CPIF/AF	King of Prussia, PA	0.000	0.000		338.300	Nov-08	373.140	Nov-09	Continuing	TBD	
SE&I (SAIC)	CPAF	Huntington Beach, CA	0.000			5.270	Nov-08	6.678	Nov-09	Continuing	TBD	
Modernization/SE & Technical Support	Various	Various	0.000			18.020	Nov-08	16.110	Nov-09	Continuing	TBD	
Subtotal Product Development			0.000	0.000		361.590		395.928		Continuing	TBD	0.000
Remarks:												
(U) <u>Support</u>												
Wing Support	Various	Various	0.000			30.686	Nov-08	29.452	Nov-09	Continuing	TBD	
Subtotal Support			0.000	0.000		30.686		29.452		Continuing	TBD	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			0.000	0.000		392.276		425.380		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

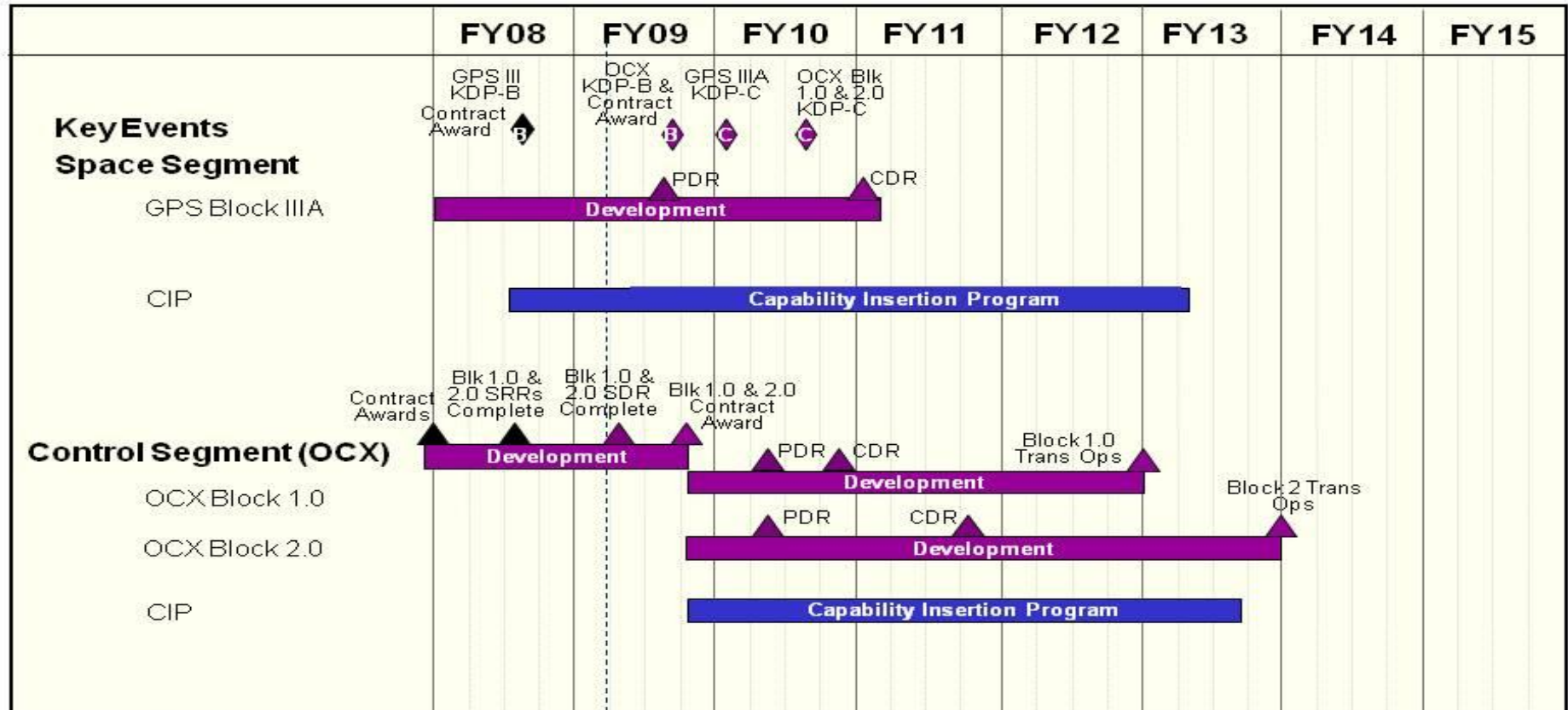
DATE

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BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0305265F GPS III Space Segment

PROJECT NUMBER AND TITLE  
A019 GPS IIIA



CDR – Critical Design Review  
 CIP – Capability Insertion Program  
 PDR: Preliminary Design Review  
 SRR: System Requirements Review  
 SDR: System Design Review



Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305265F GPS III Space Segment

PROJECT NUMBER AND TITLE

A019 GPS IIIA

(U) Schedule Profile

FY 2008

FY 2009

FY 2010

(U) GPS IIIA Preliminary Design Review (PDR)

3Q

(U) GPS IIIA KDP-C

1Q

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>					PE NUMBER AND TITLE <b>0305265F GPS III Space Segment</b>			PROJECT NUMBER AND TITLE <b>A020 OCX</b>		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
A020 OCX	0.000	0.000	389.715	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

The Global Positioning System (GPS) is a space based position, navigation and time (PNT) distribution system. This Budget Program Activity Code (BPAC) funds Research and Development (R&D) for the next generation GPS control segment (OCX). This includes, but is not limited to, advance concept development, systems engineering and analysis, modernized control segment development, training simulators, Integrated Logistics Support (ILS) products, and developmental test resources. The OCX acquisition was established to 1) fly the GPS III satellites, 2) incorporate situational awareness to support Navwar and signal monitoring, and 3) enable mission capability upgrades to support warfighter effect based operations.

Funds will support engineering studies and analyses, architecture engineering studies, trade studies, technology needs forecasting, systems engineering, systems development, test and evaluation efforts and transition to mission operations in support of upgrades and product improvements for military and civil applications necessary to support efforts to protect U.S. military and allies' use of GPS. Funds will support science and technology, technology development and systems development efforts.

Funding in this PE/BPAC was previously part of GPS Operational Control Segment Backwards Compatibility (PE 0603427F/64A022) and Global Positioning System III - Operational Control Segment (PE 0603423F/63A021).

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Continue OCX Block I & II Development	0.000	0.000	312.247
(U) Continue SE&I	0.000	0.000	35.103
(U) Continue Program Support	0.000	0.000	42.365
(U) Total Cost	0.000	0.000	389.715

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2008</u> Actual	<u>FY 2009</u> Estimate	<u>FY 2010</u> Estimate	<u>FY 2011</u> Estimate	<u>FY 2012</u> Estimate	<u>FY 2013</u> Estimate	<u>FY 2014</u> Estimate	<u>FY 2015</u> Estimate	<u>Cost to</u> <u>Complete</u>	<u>Total Cost</u>
(U) AF, RDT&E										
(U) PE 0603421F Global Positioning System (Project 644993; BA-04; R-38)	446.197	0.000	0.000							446.197
(U) PE 0603423F Global Positioning System III Operational Control Segment	0.000	306.502	0.000							306.502

Exhibit R-2a, RDT&E Project Justification

DATE

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305265F GPS III Space Segment

PROJECT NUMBER AND TITLE

A020 OCX

(U) **C. Other Program Funding Summary (\$ in Millions)**

(Project 64A021; BA-04;  
R-XX)

(U) Other APPN

(U) Missile Procurement: PE 030265F, BA-5, P-XX	0.000	0.000	0.000	TBD
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(U) Other Procurement: PE 0305265F, BP 83, 836730, P-70; BP 86	0.000	0.000	0.000	TBD
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(U) **D. Acquisition Strategy**

The Air Force is pursuing a "Block" approach to the GPS III next generation control segment (OCX) to rapidly respond to warfighter capability requirements. The Block acquisition utilizes a disciplined system engineering approach which focuses on mitigating cost and schedule risk through a lower risk incremental delivery of mature technologies. This approach focuses on mission success and on time delivery. The first block of GPS III ground control segment (OCX) will provide backwards compatibility to GPS Block II capability.

The full content of OCX Blocks 1.0 and 2.0 includes M-code and civil signal monitoring, Netcentric Global Information Grid connectivity, command and control for GPS IIIA vehicles, and will meet current Information Assurance standards. This acquisition includes a structured capability insertion program to support risk reduction for OCX Blocks 3.0 and 4.0 (associated with controlling GPS IIIB and IIIC SVs).

UNCLASSIFIED

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>07 Operational System Development</b>				<b>0305265F GPS III Space Segment</b>					<b>A020 OCX</b>			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
Phase B OCX Blk I & II Development	CPIF	TBD	0.000	0.000		0.000		312.247	Nov-09	Continuing	TBD	
SE&I (SAIC)	CPAF	El Segundo, CA	0.000	0.000		0.000		12.701	Nov-09	Continuing	TBD	
SE & Technical Support	Various	Various	0.000	0.000		0.000		22.402	Nov-09	Continuing	TBD	
Subtotal Product Development			0.000	0.000		0.000		347.350		Continuing	TBD	0.000
Remarks:												
(U) <u>Support</u>												
Wing Support	Various	Various	0.000	0.000		0.000		42.365	Nov-09	Continuing	TBD	
Subtotal Support			0.000	0.000		0.000		42.365		Continuing	TBD	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			0.000	0.000		0.000		389.715		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

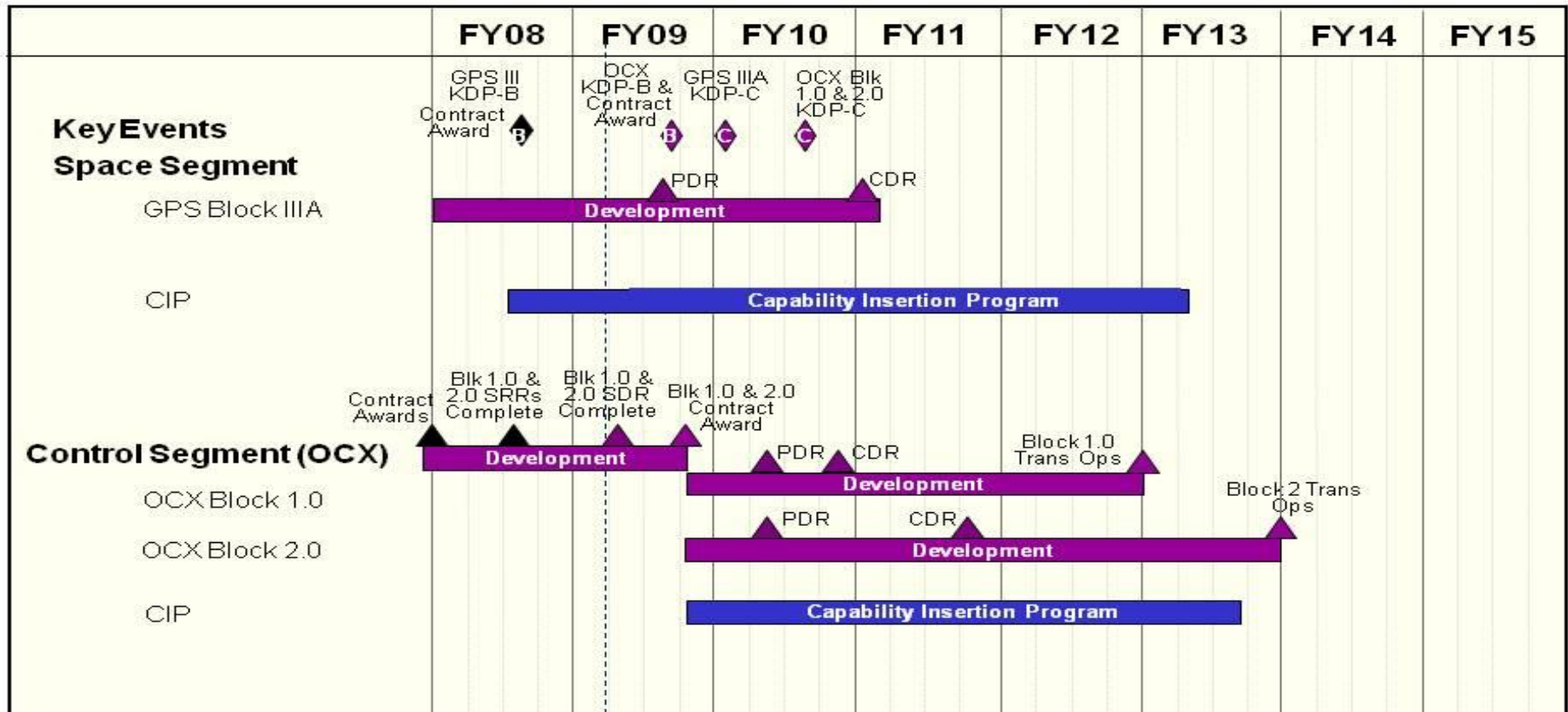
DATE

May 2009

BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0305265F GPS III Space Segment

PROJECT NUMBER AND TITLE  
A020 OCX



CDR – Critical Design Review  
CIP – Capability Insertion Program  
PDR: Preliminary Design Review  
SRR: System Requirements Review  
SDR: System Design Review

Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305265F GPS III Space Segment

PROJECT NUMBER AND TITLE

A020 OCX

(U) Schedule Profile

FY 2008

FY 2009

FY 2010

(U) OCX Blk 2.0 Preliminary Design Review (PDR)

2Q

(U) OCX Blk 1.0/2.0 Key Decision Point (KDP)-C

3Q

(U) OCX Blk 1.0 Critical Design Review (CDR)

4Q

FY09 OCX funding and associated efforts are located in PEs 0603423F and 0603427F.

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>May 2009</b>
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BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0305614F JSpOC Mission System</b>
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.000	0.000	131.271	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
A030 Infrastructure	0.000	0.000	29.469	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
A031 Mission Applications	0.000	0.000	87.520	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
A032 Command & Control	0.000	0.000	8.085	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
A033 Data Integration	0.000	0.000	6.197	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

JSpOC Mission System is a new program element in the FY10 PB. It consolidates on-going efforts from PE 64425F (Integrated Space Situational Awareness (ISSA), PE 64421F (RAIDRS Block 20), and PE 27410F (Space Command and Control) into a single program element as the programs were consolidated into a single program. This program will also develop improved, responsive, and accurate orbital collision predictions for commercial and international space systems.

**(U) A. Mission Description and Budget Item Justification**

JMS is responsible for space situational awareness (SSA) and command & control of space forces. SSA includes the knowledge of all aspects of space related to operations to thoroughly assess threats to U.S. space assets and develop options, military and diplomatic to counter them and to establish contingency plans to ensure U.S. forces can maintain access to space assets. JMS will access intelligence on adversary space operations, process surveillance of all space objects and activities, maintain detailed reconnaissance of specific space assets; fuse space environmental data, maintain awareness of cooperative space assets; and allow the Joint Functional Component Command for Space (JFCC-Space) to conduct space forces integrated command, control, communications, processing, analysis, dissemination, and archiving activities. Near-term focus is to provide a sustainable net-centric environment with a highly accurate, responsive, and robust SSA system migration from the rapidly aging and sustainment-challenged Space Defense Operations Center (SPADOC) system (SPADOC design end of life was 2002). JMS will provide integrated space knowledge/information for the Commander, JFCC-Space to plan, direct, coordinate, and control operations of assigned forces. JMS will provide the ability to: monitor status, activities and environment for assigned/attached space forces; assess how space forces support the battle space, provide impacts of changes to force status, impacts of enemy forces on space assets; plan space operations to support theater and national operations; and execute Joint Space Tasking Order, track task performance, adapt tasking to changing situations, and conduct technology forecasting for future blocks and emerging needs. JMS will also develop improved information capabilities for integration across SSA sensors, including exposing data when required.

These efforts are in Budget Activity 7, Operational System Development, because they develop new JMS capabilities

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305614F JSpOC Mission System

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget			
(U) Current PBR/President's Budget	0.000	0.000	131.271
(U) Total Adjustments	0.000	0.000	
(U) Congressional Program Reductions			
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer			
(U) <b><u>Significant Program Changes:</u></b>			
FY10: This is a new PE in the FY10 PB.			
FY10: Funds transferred from PE 64425F (\$61.6M), 64421F (\$15.1), and PE 27410F (\$6.3M).			
FY10: Additional funds added to program for Command & Control (\$15.6M), Mission Applications and Data Integration (\$22.8M) & Space Collision Avoidance efforts (\$9.9M) (improves processing capacity).			



**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>					PE NUMBER AND TITLE <b>0305614F JSpOC Mission System</b>			PROJECT NUMBER AND TITLE <b>A030 Infrastructure</b>		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
A030 Infrastructure	0.000	0.000	29.469	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

Infrastructure will provide a services-oriented architecture (SOA) net-centric collaborative information environment at the TS/SCI, Secret, and Unclassified levels. Efforts incorporate net-centric enterprise services and integrate incremental space and command & control mission applications services. Priority is migration off the legacy SPADOC hardware and services into a sustainable infrastructure. Effort integrates components of SSA mission applications and C2 capabilities into the JSpOC to create timely, actionable knowledge necessary for maintaining space superiority and exercising command and control of space forces. Funding provides for incremental SOA/net-centric infrastructure replacement of SPADOC via concept definition/research and analysis, technical studies, and development activities. Acquisition of hardware/core services include visualization/User Defined Operational Picture implementation, registry/user profiles management, collaboration expansion, enclave information assurance implementation and accreditation across multiple security domains.

These efforts are in Budget Activity 7, Operational System Development

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Integration			7.000
(U) Design and Development			19.606
(U) Review, Management and Support			2.863
(U) Total Cost	0.000	0.000	29.469

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U)									Continuing	TBD

**(U) D. Acquisition Strategy**

Ongoing activities utilize existing risk reduction engineering and study efforts. Focus is on rapid approach with incremental deliveries to deploy a SOA environment and tools to progressively advance operational capabilities toward an integrated JMS. Integrator will provide high-level technical oversight support and assist the development of capabilities to the warfighter.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>07 Operational System Development</b>				<b>0305614F JSPOC Mission System</b>					<b>A030 Infrastructure</b>			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
Integration	TBD	TBD	0.000	0.000		0.000		7.000	Nov-09	Continuing	TBD	
Infrastructure Design & Development	C/IDIQ	Various	0.000	0.000		0.000		19.606	Nov-09	Continuing	TBD	
Subtotal Product Development			0.000	0.000		0.000		26.606		Continuing	TBD	0.000
Remarks:												
(U) <u>Support</u>												
Program Office Support	Various	Electronic Systems Center	0.000	0.000		0.000		0.800	Nov-09	Continuing	TBD	
Development, Review and Management	SS/FP LOE	FFRDC	0.000	0.000		0.000		0.946	Nov-09	Continuing	TBD	
Development, Review and Management	C/FP/LOE	Various	0.000	0.000		0.000		1.117	Nov-09	Continuing	TBD	
Subtotal Support			0.000	0.000		0.000		2.863		Continuing	TBD	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			0.000	0.000		0.000		29.469		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile


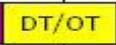
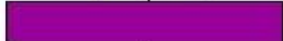
DATE

May 2009

BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0305614F JSpOC Mission System

PROJECT NUMBER AND TITLE  
A030 Infrastructure

Activity	FY10	FY11	FY12	FY13	FY14	FY15	FY16
JMS Increment 1							
Infrastructure Design & Development							
1A: UDOP/JWICS/SIPR							
1B: NIPR/Messaging							

DAE: Defense Acquisition Executive    DT: Development Test    IA: Info Assurance    IOC/FOC: Initial/Full Operational Capability    JWICS: Joint Worldwide Intelligence Comm System  
 NIPR/SIPR: Nonsecure/Secure Internet Protocol Routing    OT: Operations Test    SOA: Service-Oriented Architecture    UDOP: User Defined Operational Picture



 Risk Reduction/Concept Activities     Design / Development     Integration Test     Key events

Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305614F JSpOC Mission System

PROJECT NUMBER AND TITLE

A030 Infrastructure

(U) Schedule Profile

FY 2008

FY 2009

FY 2010

(U) Increment 1A: UDOP/JWICS/SIPR

1-4Q

(U) Increment 1B: NIPR/Messaging

2-4Q

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>					PE NUMBER AND TITLE <b>0305614F JSpOC Mission System</b>			PROJECT NUMBER AND TITLE <b>A031 Mission Applications</b>		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
A031 Mission Applications	0.000	0.000	87.520	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

Mission applications will provide space services to enhance the accuracy, sustainability, and responsiveness of space surveillance capabilities from the legacy SPADOC SSA functions onto a net-centric enterprise enabling automated, real-time correlation, integration, distribution of data, and providing the knowledge environment necessary to enable the Commander JFCC-Space rapid, responsive decisions for the protection of space assets from proliferating threats (adversary and environmental, including orbiting debris). The system will provide a high accuracy space catalog (knowledge of space objects), increased observation verification and sensor tasking processing capabilities, and improved event processing. Research, design, and development will provide SSA space catalog applications, services, space surveillance observation processing, and sensor tasking. Activities included are maneuver processing, sensor calibration, conjunction analysis/collision prediction, high accuracy element set generation, re-entry/decay prediction/processing, , threat processing, look angles, and web services interface. Funding includes technical studies, systems engineering, and integration.

This effort will quickly deliver expanded JSpOC capabilities to conduct responsive spacecraft collision avoidance prediction calculations and unclassified information message transmissions incorporating both commercial and international space assets. Also, system capacity will be increased to provide high accuracy orbital predictions for up to 1300 tracked space objects.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Design and Development			66.863
(U) Risk Reduction			5.500
(U) Review, Management, and Support			5.257
(U) Collision Avoidance Design and Development			9.900
(U) Total Cost	0.000	0.000	87.520

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	

(U)

**(U) D. Acquisition Strategy**

Continues existing SSA risk reduction efforts with emphasis on employing rapid incremental acquisition to progressively advance capabilities towards integrated SSA envisioned by existing architectures and roadmaps.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>07 Operational System Development</b>				<b>0305614F JSpOC Mission System</b>					<b>A031 Mission Applications</b>			
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
Mission Apps Design and Develop	TBD	Various	0.000	0.000		0.000		66.863	Nov-09	Continuing	TBD	
SSA Risk Reduction	TBD	Various	0.000	0.000		0.000		5.500	Dec-09	Continuing	TBD	
Collision Avoidance Design and Develop	TBD	TBD	0.000	0.000		0.000		9.900	Dec-09	Continuing	TBD	
Subtotal Product Development			0.000	0.000		0.000		82.263		Continuing	TBD	0.000
Remarks:												
(U) <u>Support</u>												
Program Office Support	Various	Electronic Systems Center	0.000	0.000		0.000		0.500	Nov-09	Continuing	TBD	
Development, Review and Management	SS/FP LOE	FFRDC	0.000	0.000		0.000		2.521	Nov-09	Continuing	TBD	
Development, Review and Management	C/FP LOE	Various	0.000	0.000		0.000		2.236	Nov-09	Continuing	TBD	
Subtotal Support			0.000	0.000		0.000		5.257		Continuing	TBD	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			0.000	0.000		0.000		87.520		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0305614F JSpOC Mission System

PROJECT NUMBER AND TITLE  
A031 Mission Applications

Activity	FY10	FY11	FY12	FY13	FY14	FY15	FY16
JMS Increment 1 Risk Reduction							
1A: High Accuracy Catalog							
1B: Observation Processing							
JMS Increment 2 Risk Reduction							

DAE: Defense Acquisition Executive    DT: Development Test    IOC/FOC: Initial/Full Operational Capability Picture    Key Decision Point    NIPR/SIPR:    OT: Operations Test  
 SOA: Service-Oriented Architecture

Risk Reduction/Concept Activities   
 Design / Development   
 Integration Test   
 Key events

Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305614F JSpOC Mission System

PROJECT NUMBER AND TITLE

A031 Mission Applications

(U) Schedule Profile

FY 2008

FY 2009

FY 2010

(U) Increment 1 Risk Reduction

1-4Q

(U) Increment 1A: High Accuracy Catalog

1-4Q

(U) Increment 1B: Observation Processing

2-4Q

(U) Increment 2 Risk Reduction

1-4Q



Exhibit R-2a, RDT&E Project Justification

DATE  
May 2009

BUDGET ACTIVITY <b>07 Operational System Development</b>					PE NUMBER AND TITLE <b>0305614F JSpOC Mission System</b>			PROJECT NUMBER AND TITLE <b>A032 Command &amp; Control</b>		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
A032 Command & Control	0.000	0.000	8.085	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) **A. Mission Description and Budget Item Justification**

Command & Control (C2) effort will design, develop and integrate functions to create, visualize, and share decision-relevant views of space operational environment at all echelons. Functions include Space Situational Awareness and attack assessment data to provide an integrated space information environment for the JSpOC C2 node and improve deliberate attack warning/reporting, planning, tasking, course of action (COA) development capability, and situation assessment. These efforts are in Budget Activity 7, Operational System Development

(U) **B. Accomplishments/Planned Program (\$ in Millions)**

	FY 2008	FY 2009	FY 2010
(U) Risk Reduction			6.566
(U) Review, Management and Support			1.519
(U) Total Cost	0.000	0.000	8.085

(U) **C. Other Program Funding Summary (\$ in Millions)**

	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total Cost
(U)										

(U) **D. Acquisition Strategy**

Risk reduction technology development/operational pilots to decrease uncertainties then employ competitively selected developer to produce and field incremental capabilities.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>07 Operational System Development</b>				<b>0305614F JSPOC Mission System</b>					<b>A032 Command &amp; Control</b>			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
C2 Risk Reduction	TBD	Various	0.000	0.000		0.000		6.566	Dec-09	Continuing	TBD	
Subtotal Product Development			0.000	0.000		0.000		6.566		Continuing	TBD	0.000
Remarks:												
(U) <u>Support</u>												
Program Office Support	Various	Electronic Systems Center	0.000	0.000		0.000		0.250	Nov-09	Continuing	TBD	
Development, Review and Management	SS/FP LOE	FFRDC	0.000	0.000		0.000		0.630	Nov-09	Continuing	TBD	
Development, Review and Management	C/FP LOE	Various	0.000	0.000		0.000		0.639	Nov-09	Continuing	TBD	
Subtotal Support			0.000	0.000		0.000		1.519		Continuing	TBD	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			0.000	0.000		0.000		8.085		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0305614F JSpOC Mission System

PROJECT NUMBER AND TITLE  
A032 Command & Control

Activity	FY10	FY11	FY12	FY13	FY14	FY15	FY16
JMS Increment 2 Risk Reduction							

DAE: Defense Acquisition Executive DT: Development Test IOC/FOC: Initial/Full Operational Capability OT: Operations Test

Risk Reduction/Concept Activities

Design / Development

Integration Test

Key events

Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305614F JSpOC Mission System

PROJECT NUMBER AND TITLE

A032 Command & Control

(U) Schedule Profile

FY 2008

FY 2009

FY 2010

(U) Increment 2 Risk Reduction

2-4Q

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>					PE NUMBER AND TITLE <b>0305614F JSpOC Mission System</b>			PROJECT NUMBER AND TITLE <b>A033 Data Integration</b>		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
A033 Data Integration	0.000	0.000	6.197	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

Effort to provide enterprise level operational space surveillance information from the worldwide space tracking network and intelligence sources onto a net-centric architecture enabling the Joint Space Operations Center (JSpOC) and priority users to subscribe, retrieve, and monitor space surveillance awareness (SSA) activities. This project is vital to providing JFCC-Space real-time situational awareness of multiple space tracking missions and facilitates access to pre-data collection information (e.g., sensor tasking, data collection plans, sensor status, etc.), real-time tracking data (e.g., imagery and metric observations), and post-data collection (e.g., user defined re-imaging service, archived mission data, etc.). Funds will develop the architecture to satisfy interoperability with DOD net-centric standard and JSpOC technical interfaces, integrate and field capabilities, and implement logistical planning.

These efforts are in Budget Activity 7, Operational System Development, because they develop capabilities, provide technical expertise, and support for the net-centric data integration of space surveillance information.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Research and Analysis	0.000	0.000	1.537
(U) Design and Development	0.000	0.000	3.417
(U) Review, Management and Support	0.000	0.000	1.243
(U) Total Cost	0.000	0.000	6.197

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
(U)	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	

**(U) D. Acquisition Strategy**

Supports on-going data exposure efforts for SSA sensors and intelligence sources to fulfill JSpOC data requirements via a net-centric based enterprise architecture.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>07 Operational System Development</b>				<b>0305614F JSPOC Mission System</b>					<b>A033 Data Integration</b>			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
Concept Definition Research/Analysis	Various	TBD	0.000	0.000		0.000		1.537	Nov-09	Continuing	TBD	
Systems Product Development	Varios	TBD	0.000	0.000		0.000		3.417	Nov-09	Continuing	TBD	
Subtotal Product Development			0.000	0.000		0.000		4.954		Continuing	TBD	0.000
Remarks:												
(U) <u>Support</u>												
Program Office/Related Support	Various	TBD	0.000	0.000		0.000		1.243	Oct-09	Continuing	TBD	
Subtotal Support			0.000	0.000		0.000		1.243		Continuing	TBD	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			0.000	0.000		0.000		6.197		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0305614F JSpOC Mission System

PROJECT NUMBER AND TITLE  
A033 Data Integration

Activity	FY10	FY11	FY12	FY13	FY14	FY15	FY16
Data Integration							

Risk Reduction/Concept Activities

Design / Development

Integration Test

Key events

Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305614F JSpOC Mission System

PROJECT NUMBER AND TITLE

A033 Data Integration

(U) Schedule Profile

FY 2008

FY 2009

FY 2010

(U) Data Integration Services

1-4Q



**UNCLASSIFIED**

PE NUMBER: 0305887F  
 PE TITLE: Electronic Combat Intelligence Support

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0305887F Electronic Combat Intelligence Support</b>
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	5.163	5.401	5.267	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
0374 Electronic Combat Spt, C3 Protection/Multi-Mission, Technology and Spt	5.163	5.401	5.267	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

**(U) A. Mission Description and Budget Item Justification**

This program expedites Information Superiority (IS) Technology transition from laboratory, industry, and academia to operational platforms including the Network Attack System (NAS) via studies, rapid prototyping, technology demonstrations and other RDT&E efforts. Program efforts directly support the AF Information Operations Capabilities Plan (IOCP) and the DoD Information Operations (IO) Roadmap.

The program office investigates and selects the highest potential Information Operations technologies to meet specific shortfalls, deficiencies and requirements documented by major commands (MAJCOMs), unified commands, and IO agencies in Mission Area Plans (MAPs) and capabilities documents. In accordance with Air Force Policy on Information Operations, the IS core capability areas to be considered are influence operations, electronic warfare operations and network warfare operations.

Planned areas of study, prototyping, and demonstration include, but are not limited to, IO techniques and technologies. This will be done by exploiting Integrated Air Defense Systems (IADS), electronic warfare operations, Command and Control Systems, and applying the latest advancements in emerging physics, electronic warfare, communications, directed energy, electronic sensors, and intelligence to IS.

The program office works directly with labs, industry, and warfighters to set priorities and find synergistic combinations of new technology, doctrine and training via multiple Network Warfare Operations Capability (NWOC) contract awards to deliver state of the art IO tools to the warfighter as well as to engineer key upgrades and modifications to the NAS. Program efforts will be prioritized and guided by the Information Operations Capabilities Team (IOCT) in support of the Air Force IOCP and other applicable requirements documents.

This program funds advanced IO studies and analysis to leverage DoD laboratory research, concept exploration and joint concept technology demonstrations. Studies support or complement PE 0208021 Information Warfare Support. Program activities are protected under the PANTHER DEN Special Access Program. Data available upon request.

This program is Budget Activity 7, Operational System Development, because it studies, develops, tests, and fields IO technologies to operational systems.

Exhibit R-2, RDT&E Budget Item Justification

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305887F Electronic Combat Intelligence Support

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	5.305	5.438	5.586
(U) Current PBR/President's Budget	5.163	5.401	5.267
(U) Total Adjustments	-0.142	-0.037	
(U) Congressional Program Reductions		-0.023	
Congressional Rescissions		-0.014	
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer	-0.142		
(U) <u>Significant Program Changes:</u>			

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

May 2009

BUDGET ACTIVITY		PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>07 Operational System Development</b>		<b>0305887F Electronic Combat Intelligence Support</b>					<b>0374 Electronic Combat Spt, C3 Protection/Multi-Mission, Technology and Spt</b>			
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
0374 Electronic Combat Spt, C3 Protection/Multi-Mission, Technology and Spt	5.163	5.401	5.267	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

This program expedites Information Superiority (IS) Technology transition from laboratory, industry, and academia to operational platforms including the Network Attack System (NAS) via studies, rapid prototyping, technology demonstrations and other RDT&E efforts. Program efforts directly support the AF Information Operations Capabilities Plan (IOCP) and the DoD Information Operations (IO) Roadmap.

The program office investigates and selects the highest potential Information Operations technologies to meet specific shortfalls, deficiencies and requirements documented by major commands (MAJCOMs), unified commands, and IO agencies in Mission Area Plans (MAPs) and capabilities documents. In accordance with Air Force Policy on Information Operations, the IS core capability areas to be considered are influence operations, electronic warfare operations and network warfare operations.

Planned areas of study, prototyping, and demonstration include, but are not limited to, IO techniques and technologies. This will be done by exploiting Integrated Air Defense Systems (IADS), electronic warfare operations, Command and Control Systems, and applying the latest advancements in emerging physics, electronic warfare, communications, directed energy, electronic sensors, and intelligence to IS.

The program office works directly with labs, industry, and warfighters to set priorities and find synergistic combinations of new technology, doctrine and training via multiple Network Warfare Operations Capability (NWOC) contract awards to deliver state of the art IO tools to the warfighter as well as to engineer key upgrades and modifications to the NAS. Program efforts will be prioritized and guided by the Information Operations Capabilities Team (IOCT) in support of the Air Force IOCP and other applicable requirements documents.

This program funds advanced IO studies and analysis to leverage DoD laboratory research, concept exploration and joint concept technology demonstrations. Studies support or complement PE 0208021 Information Warfare Support. Program activities are protected under the PANTHER DEN Special Access Program. Data available upon request.

This program is Budget Activity 7, Operational System Development, because it studies, develops, tests, and fields IO technologies to operational systems.

UNCLASSIFIED

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>		DATE <b>May 2009</b>
<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0305887F Electronic Combat Intelligence Support</b>	<b>PROJECT NUMBER AND TITLE</b> <b>0374 Electronic Combat Spt, C3 Protection/Multi-Mission, Technology and Spt</b>

<b>(U) B. Accomplishments/Planned Program (\$ in Millions)</b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) NAS - Network Attack System Modifications/Upgrades	0.572	0.500	0.500
(U) NWOC - Network Warfare Operations Capability Studies & Technology	2.109	2.491	2.312
(U) IO Technologies	0.259	0.260	0.270
(U) Management & Contract Support	1.623	1.550	1.585
(U) Test & Evaluation	0.600	0.600	0.600
(U) Total Cost	5.163	5.401	5.267

<b>(U) C. Other Program Funding Summary (\$ in Millions)</b>										
	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Info Assurance R&D, Operations and Maintenance, AF PE (0305887F)	4.091	4.200	4.587	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

**(U) D. Acquisition Strategy**  
All major contracts within this program element are awarded after full and open competition unless other than full and open is justified to the Program Executive Officer (PEO).

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0305887F Electronic Combat Intelligence Support</b>	<b>PROJECT NUMBER AND TITLE</b> <b>0374 Electronic Combat Spt, C3 Protection/Multi-Mission, Technology and Spt</b>
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<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
<u>(U) Product Development</u> NAS Modifications/Upgrades	T&M	Various, Lackland AFB, TX	2.446	0.572	Nov-07	0.500	Nov-08	0.500	Nov-09	Continuing	TBD	TBD
NWOC Studies & Technology	IDIQ	Various	1.763	2.109	Jan-08	2.491	Jan-09	2.312	Jan-10	Continuing	TBD	TBD
IO Technologies	Various	Various		0.259	May-08	0.260	May-09	0.270	May-10	Continuing	TBD	TBD
Subtotal Product Development			4.209	2.940		3.251		3.082		Continuing	TBD	TBD
Remarks:												
<u>(U) Support</u> Acquisition Support	A&AS	Various, Lackland AFB, TX	1.203	0.655	Nov-07	0.700	Nov-08	0.725	Nov-09	Continuing	TBD	TBD
Engineering Support	FFRDC	MITRE, Lackland AFB, TX	0.644	0.572	Oct-07	0.600	Oct-08	0.625	Oct-09	Continuing	TBD	TBD
Subtotal Support			1.847	1.227		1.300		1.350		Continuing	TBD	TBD
Remarks:												
<u>(U) Test &amp; Evaluation</u> 46th Test Squadron Det 2	T&M	Various, Lackland AFB, TX	0.693	0.600	Mar-08	0.600	Mar-09	0.600	Mar-10	Continuing	TBD	TBD
Subtotal Test & Evaluation			0.693	0.600		0.600		0.600		Continuing	TBD	TBD
Remarks:												
<u>(U) Management</u> Operating Costs	A&AS	950th ELSG, Hanscom AFB MA	0.319	0.396	Feb-08	0.250	Feb-09	0.235	Feb-10	Continuing	TBD	TBD
Subtotal Management			0.319	0.396		0.250		0.235		Continuing	TBD	TBD
Remarks:												
<u>(U) Total Cost</u>			7.068	5.163		5.401		5.267		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

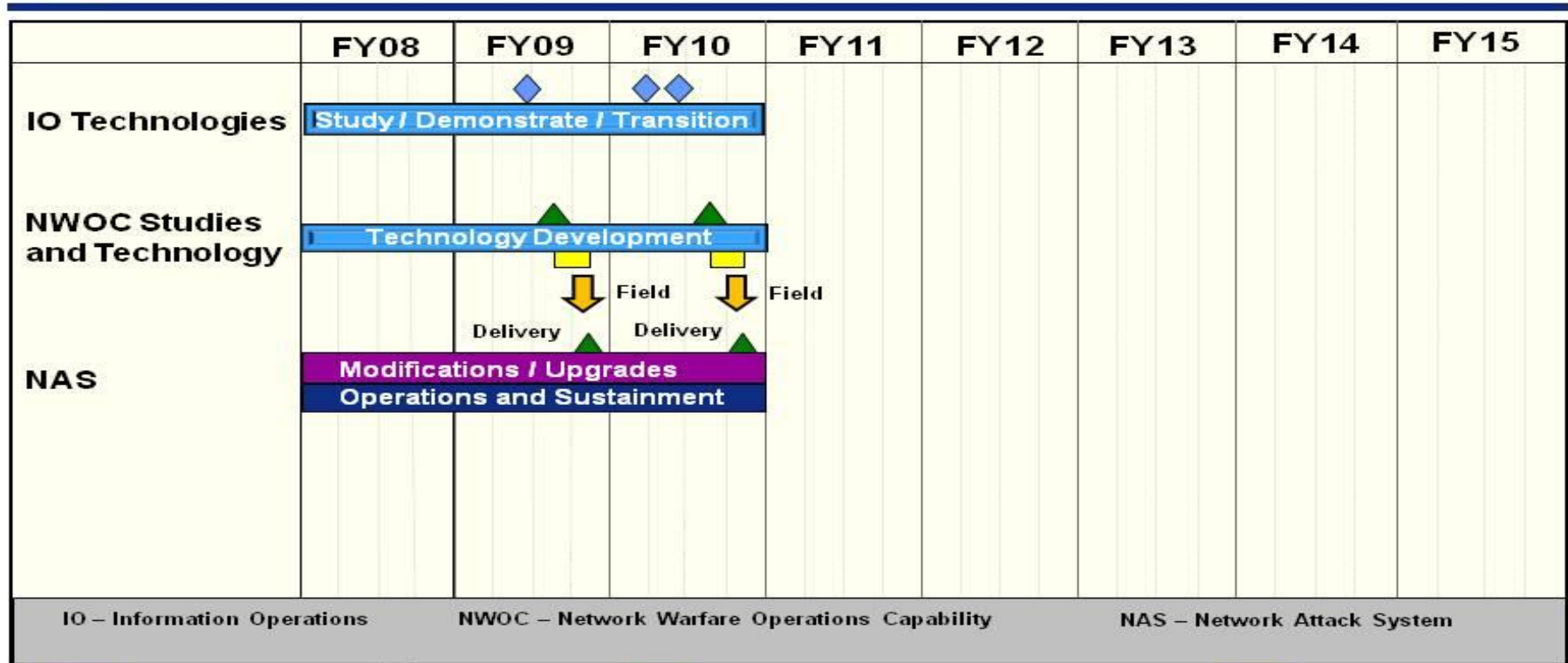
BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0305887F Electronic Combat  
Intelligence Support

PROJECT NUMBER AND TITLE  
0374 Electronic Combat Spt, C3  
Protection/Multi-Mission, Technology  
and Spt



*IO Schedule*



IO – Information Operations

NWOC – Network Warfare Operations Capability

NAS – Network Attack System

Concept Activities  
Fielding

Design / development  
Operations and Sustainment

Integrate / test  
Key events

**PB10 R-Docs**

UNCLASSIFIED

<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>		DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0305887F Electronic Combat Intelligence Support</b>	<b>PROJECT NUMBER AND TITLE</b> <b>0374 Electronic Combat Spt, C3 Protection/Multi-Mission, Technology and Spt</b>
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<b>(U) <u>Schedule Profile</u></b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Network Attack System Modifications/Upgrades	1-4Q	1-4Q	1-4Q
(U) Network Warfare Operations Capability Studies and Technology	1-4Q	1-4Q	1-4Q
(U) IO Technologies	1-4Q	1-4Q	1-4Q

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**UNCLASSIFIED**

PE NUMBER: 0305906F  
 PE TITLE: NCMC - TW/AA System

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0305906F NCMC - TW/AA System</b>
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	11.417	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	285.869
4806 Combatant Commanders' Integrated Command and Control System (CCIC2S)	11.417	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	285.869

- a. In FY06, the Space Surveillance and Warning and Space Command and Control efforts were transferred from PE 0305906F, by direction of the SECAF.
- b. In FY06, the Space Surveillance and Warning efforts were transferred to PE 0604425F, Space Situational Awareness Systems, BPAC 65A039, by direction of the SECAF.
- c. In FY06, the Space Command and Control efforts were transferred to PE 0207410F, Air & Space Operations Center, BPAC 674372, by direction of the SECAF.

**(U) A. Mission Description and Budget Item Justification**

Combatant Commander's Integrated Command and Control System (CCIC2S) provides the future standards-based, interoperable architecture for a North American Aerospace Defense Command/US Strategic Command (NORAD/USSTRATCOM) Battle Management/C4I system of systems that complies with the Network Centric Enterprise Services, Joint Technical Architecture standards and provides for DoD/Joint Command and Control (C2) interoperability. CCIC2S initially addressed all NORAD and selected USSTRATCOM missions including the Integrated Tactical Warning/Attack Assessment of missile, space, and air threats, and Space Battle Management. CCIC2S will provide NORAD Commander and Combatant Commander USSTRATCOM a C2 system that is interoperable with the NORAD/USSTRATCOM warfighting functions and supporting/supported Combatant Commanders. CCIC2S has the flexibility to enable it to meet evolving mission needs (e.g.,Space-Based Infrared System, Command and Control Battle Management and Communications, Computer Network Defense and Information Operations). The CCIC2S operational architecture will allow Combatant Commanders to better monitor world situations, make threat assessments, formulate Courses of Action, and develop force direction for synchronized warfighter operations.

This program element is in Budget Activity 7, Operational System Development, because the projects in this program element support development acquisition programs or upgrades in support of operational systems.

**UNCLASSIFIED**

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305906F NCMC - TW/AA System

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	11.720	0.000	0.000
(U) Current PBR/President's Budget	11.417	0.000	0.000
(U) Total Adjustments	-0.303	0.000	
(U) Congressional Program Reductions			
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer	-0.303		

(U) **Significant Program Changes:**

- a. In FY06, the Space Surveillance and Warning and Space Command and Control efforts were transferred from PE 0305906F, by direction of the SECAF.
- b. In FY06, the Space Surveillance and Warning efforts were transferred to PE 0604425F, Space Situational Awareness Systems, BPAC 65A039, by direction of the SECAF.
- c. In FY06, the Space Command and Control efforts were transferred to PE 0207410F, Air & Space Operations Center, BPAC 674372, by direction of the SECAF.

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>					PE NUMBER AND TITLE <b>0305906F NCMC - TW/AA System</b>			PROJECT NUMBER AND TITLE <b>4806 Combatant Commanders' Integrated Command and Control System (CCIC2S)</b>		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
4806 Combatant Commanders' Integrated Command and Control System (CCIC2S)	11.417	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	285.869
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

Combatant Commander's Integrated Command and Control System (CCIC2S) provides the future standards-based, interoperable architecture for a North American Aerospace Defense Command/US Strategic Command (NORAD/USSTRATCOM) Battle Management/C4I system of systems that complies with the Network Centric Enterprise Services, Joint Technical Architecture standards and provides for DoD/Joint Command and Control (C2) interoperability. CCIC2S initially addressed all NORAD and selected USSTRATCOM missions including the Integrated Tactical Warning/Attack Assessment of missile, space, and air threats, and Space Battle Management. CCIC2S will provide NORAD Commander and Combatant Commander USSTRATCOM a C2 system that is interoperable with the NORAD/USSTRATCOM warfighting functions and supporting/supported Combatant Commanders. CCIC2S has the flexibility to enable it to meet evolving mission needs (e.g.,Space-Based Infrared System, Command and Control Battle Management and Communications, Computer Network Defense and Information Operations). The CCIC2S operational architecture will allow Combatant Commanders to better monitor world situations, make threat assessments, formulate Courses of Action, and develop force direction for synchronized warfighter operations.

This program element is in Budget Activity 7, Operational System Development, because the projects in this program element support development acquisition programs or upgrades in support of operational systems.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Core C2 Services: Continue enterprise network infrastructure (Core C2) development to support mission elements. The infrastructure is comprised of systems operations and enterprise services (database, workstations, security information assurance, and scenario services). Additionally, the communications systems upgrade, which provides critical data to the USSTRATCOM Joint Space Operations Center (JSpOC) and replaces the unsupportable legacy Communication System Segment Replacement (CSSR) will be completed in FY08.	11.417	0.000	0.000
(U) Missile Mission Development/Test: Missile Warning mission capability was delivered in Dec 06 providing Global Command and Control System (GCCS)-based core missile warning capability adaptable to operating locations and interoperable with other National Command Centers. Missile monitoring and status tools, theater event displays, and simulated threat environments for improved training capability were also delivered.			
(U) Space Surveillance and Warning: Development efforts (FY08-13) transferred to PE 64425F, FY08.			
(U) Single Integrated Space Picture (SISP): develops prototype net-centric space services to present an integrated space User Defined Operational Picture (UDOP). This Space UDOP will contain relevant space data that allows space			

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> 07 Operational System Development	<b>PE NUMBER AND TITLE</b> 0305906F NCMC - TW/AA System	<b>PROJECT NUMBER AND TITLE</b> 4806 Combatant Commanders' Integrated Command and Control System (CCIC2S)
---	--	--

<b>(U) B. Accomplishments/Planned Program (\$ in Millions)</b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
commanders to know status of Blue, Red, and Grey space forces, recognize and understand the impacts of space events, and facilitate command of their space forces to support global and theater operations. Delivers multiple prototypes and operational pilots that utilize rapid development principles to obtain continuous user feedback. Reduces technical risk to future Space C2 System.			
<b>(U) Total Cost</b>	11.417	0.000	0.000

<b>(U) C. Other Program Funding Summary (\$ in Millions)</b>										
	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
<b>(U) Other APPN</b>										
<b>(U) OPAF (PE 0305906F, Cheyenne Mountain Complex, P-1 Line Item #42, BA 3)</b>	14.341	9.371	18.918						Continuing	TBD
<b>(U) OPAF (PE 0305906F, Spares and Repair Parts, P-1 Line Item #104, BA 5)</b>	0.725	0.741	0.756						Continuing	TBD

**(U) D. Acquisition Strategy**  
Contract awarded with full and open competition--uses an evolutionary acquisition strategy based on spiral/incremental development.

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0305906F NCMC - TW/AA System</b>	<b>PROJECT NUMBER AND TITLE</b> <b>4806 Combatant Commanders' Integrated Command and Control System (CCIC2S)</b>
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<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> Lockheed Martin	CP/AF	Colorado Springs, CO Lockheed Martin (Denver, CO)	247.872	9.549	Oct-07						257.421	257.421
Subtotal Product Development Remarks:			247.872	9.549		0.000		0.000		0.000	257.421	257.421
(U) <u>Support</u> MITRE	CP/FF	Colorado Springs, CO	13.444	0.749	Nov-07						14.193	14.193
A&AS	CP/FF	Colorado Springs, CO	7.949	1.031	Nov-07						8.980	8.980
Program Support	Various	various, Colorado Springs, CO	5.187	0.088	Nov-07	0.000					5.275	5.275
Subtotal Support Remarks:			26.580	1.868		0.000		0.000		0.000	28.448	28.448
(U) Total Cost			274.452	11.417		0.000		0.000		0.000	285.869	285.869

Exhibit R-4, RDT&E Schedule Profile

DATE  
**May 2009**

BUDGET ACTIVITY  
**07 Operational System Development**

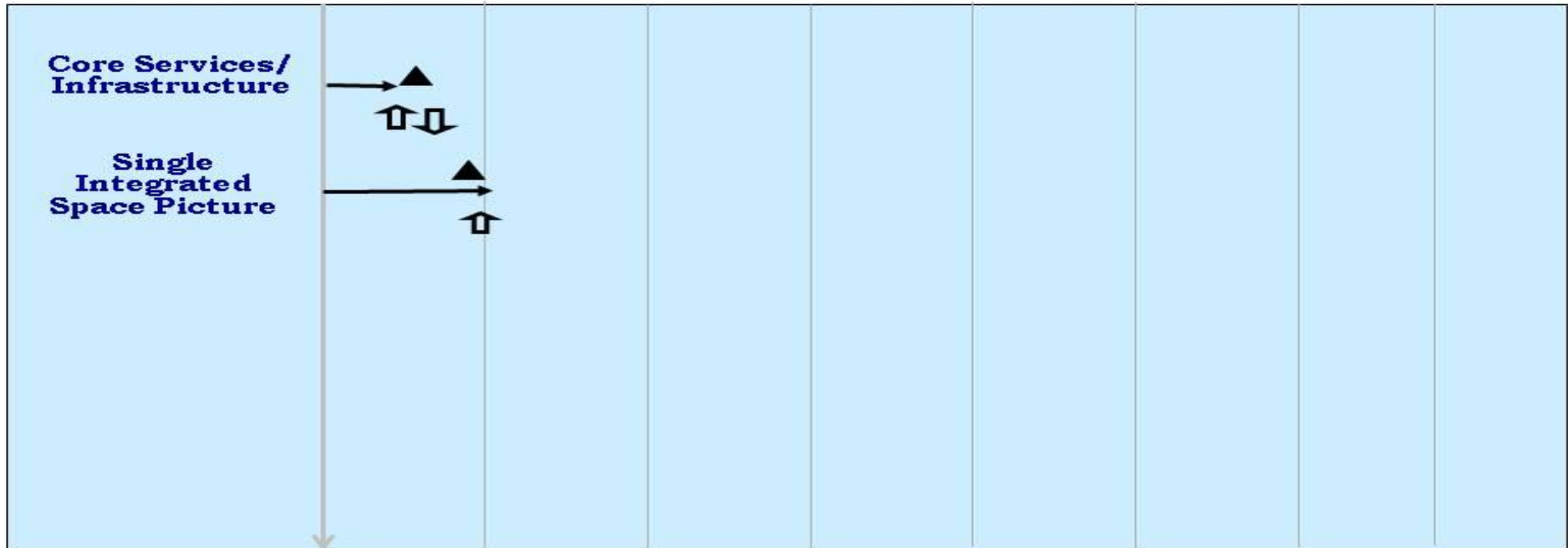
PE NUMBER AND TITLE  
**0305906F NCMC - TW/AA System**

PROJECT NUMBER AND TITLE  
**4806 Combatant Commanders' Integrated Command and Control System (CCIC2S)**



*Exhibit R-4 CCIC2S*

<i>Project Areas</i>	<i>FY2008</i>	<i>FY2009</i>	<i>FY2010</i>	<i>FY2011</i>	<i>FY2012</i>	<i>FY2013</i>	<i>FY2014</i>	<i>FY2015</i>
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△ Planned Delivery  
 ▲ Completed Spiral Delivery

🏠 Mission Capability  
 🏠 Decommission Legacy Equipment

Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305906F NCMC - TW/AA System

PROJECT NUMBER AND TITLE

4806 Combatant Commanders' Integrated Command and Control System (CCIC2S)

(U) Schedule Profile

FY 2008

FY 2009

FY 2010

(U) Core Services/Infrastructure Deliveries

2Q

(U) Single Integrated Space Picture (SISP) Enhanced Dev Del

4Q

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**UNCLASSIFIED**

PE NUMBER: 0305913F  
 PE TITLE: NUDET Detection System (Space)

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0305913F NUDET Detection System (Space)</b>
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	38.279	41.102	84.021	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
2808 Nuc Detonation Det Sys (sensors)	38.279	41.102	84.021	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

**(U) A. Mission Description and Budget Item Justification**

The Nuclear Detonation (NUDET) Detection System (NDS) provides a worldwide, highly survivable capability to detect, locate, and report any nuclear detonations in the earth's atmosphere or in near space in near-real time. The NDS supports NUDET detection requirements for United States Northern Command (USNORTHCOM)/North American Aerospace Defense Command (NORAD) (Integrated Tactical Warning and Attack Assessment (ITW/AA)), United States Strategic Command (USSTRATCOM) (Nuclear Force Management), and Air Force Technical Applications Center (AFTAC) (Treaty Monitoring). NDS consists of space and ground segments. The current space segment consists of NUDET detection sensors (optical, x-ray, dosimeters and electromagnetic pulse (EMP) sensor) on Global Positioning System (GPS) satellites and (optical, x-rays, and neutron and gamma rays) on Defense Support Program (DSP) satellites. The ground segment includes the Integrated Correlation and Display System (ICADS) and the Ground NDS Terminals (GNT).

The NDS program element funds research and development, testing and fielding of ICADS, GNT, and the integration of Space and Atmospheric Burst Reporting System (SABRS) sensors on Geostationary (GEO) satellites. ICADS provides a fixed ground receiving station and GNT provides the survivable ground receiving station. SABRS is the future neutron/gamma sensor payload that will be hosted on a classified GEO satellite and on a GEO host to replace the NDS sensor payload on DSP satellites. Sensor integration for GPS satellites is funded in the GPS Space & Control PE (0305165F) for GPS Block IIF and the GPS III Space Segment PE (0305265F) for GPS III satellites. Ground segment development remains in the NDS PE. DOE funds new NDS sensor research and production .

This program is in Budget Activity 7 - Operational System Development because it supports operational systems.

**(U) B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	38.279	41.292	39.384
(U) Current PBR/President's Budget	38.279	41.102	84.021
(U) Total Adjustments	0.000	-0.190	
(U) Congressional Program Reductions		-0.078	
Congressional Rescissions		-0.112	
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer			

**(U) Significant Program Changes:**

Increase in FY10 for SABRS integration on GEO host and associated ground processing.

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>					PE NUMBER AND TITLE <b>0305913F NUDET Detection System (Space)</b>			PROJECT NUMBER AND TITLE <b>2808 Nuc Detonation Det Sys (sensors)</b>		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
2808 Nuc Detonation Det Sys (sensors)	38.279	41.102	84.021	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

The Nuclear Detonation (NUDET) Detection System (NDS) provides a worldwide, highly survivable capability to detect, locate, and report any nuclear detonations in the earth's atmosphere or in near space in near-real time. The NDS supports NUDET detection requirements for United States Northern Command (USNORTHCOM)/North American Aerospace Defense Command (NORAD) (Integrated Tactical Warning and Attack Assessment (ITW/AA)), United States Strategic Command (USSTRATCOM) (Nuclear Force Management), and Air Force Technical Applications Center (AFTAC) (Treaty Monitoring). NDS consists of space and ground segments. The current space segment consists of NUDET detection sensors (optical, x-ray, dosimeters and electromagnetic pulse (EMP) sensor) on Global Positioning System (GPS) satellites and (optical, x-rays, and neutron and gamma rays) on Defense Support Program (DSP) satellites. The ground segment includes the Integrated Correlation and Display System (ICADS) and the Ground NDS Terminals (GNT).

The NDS program element funds research and development, testing and fielding of ICADS, GNT, and the integration of Space and Atmospheric Burst Reporting System (SABRS) sensors on Geostationary (GEO) satellites. ICADS provides a fixed ground receiving station and GNT provides the survivable ground receiving station. SABRS is the future neutron/gamma sensor payload that will be hosted on a classified GEO satellite and on a GEO host to replace the NDS sensor payload on DSP satellites. Sensor integration for GPS satellites is funded in the GPS Space & Control PE (0305165F) for GPS Block IIF and the GPS III Space Segment PE (0305265F) for GPS III satellites. Ground segment development remains in the NDS PE. DOE funds new NDS sensor research and production .

This program is in Budget Activity 7 - Operational System Development because it supports operational systems.

<b>(U) B. Accomplishments/Planned Program (\$ in Millions)</b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Continue ICADS and GNT development	22.567	21.170	36.911
(U) Continue NDS sensor on-orbit qualification	1.884	2.130	2.465
(U) Continue SABRS on GEO host development/integration	5.200	8.376	34.400
(U) Continue Mission and Program support and system studies	4.155	4.417	5.478
(U) Continue System Engineering & Integration (SE&I)	2.647	2.773	2.419
(U) Continue Technical Support	1.826	2.236	2.348
(U) Total Cost	38.279	41.102	84.021

**Exhibit R-2a, RDT&E Project Justification**

DATE

**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0305913F NUDET Detection System (Space)</b>	PROJECT NUMBER AND TITLE <b>2808 Nuc Detonation Det Sys (sensors)</b>
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**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to Complete</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>		
(U) Operations & Maintenance, (PE 0305913F, BA 1, Operating Forces, SAG 12A)	8.958	9.049	8.066							TBD
(U) Other Procurement, (PE 0305913F, BA 3 - Electronics and Telecom Equipment, WSC 836750 P-63)	15.801	27.545	15.436							TBD
(U) Missile Procurement, (PE 0305913F, BA 5 - Space & Other support, P-23)	0.000	1.246	0.000							1.246

**(U) D. Acquisition Strategy**

The NDS Acquisition Strategy is to develop, field and sustain NDS satellite sensors and NDS ground data processing and distribution hardware and software as well as mission operational and technical program support to sustain the NDS capability on GPS and GEO satellites; funding is sent by Military Interdepartmental Purchase Request (MIPR) from DoD and Department of Energy (DoE) to Sandia and Los Alamos National Laboratories and other agencies on existing DOE contracts. Funding is MIPR'd to host satellite program office.

UNCLASSIFIED

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>				<b>PE NUMBER AND TITLE</b> <b>0305913F NUDET Detection System</b> <b>(Space)</b>				<b>PROJECT NUMBER AND TITLE</b> <b>2808 Nuc Detonation Det Sys</b> <b>(sensors)</b>			
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<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
<u>(U) Product Development</u> ICADS and GNT	MIPR	Department of Energy; Sandia National Laboratory, Albuquerque NM	174.330	22.567	Jan-08	21.170	Nov-08	36.911	Nov-09	Continuing	TBD	
On-orbit sensor testing	MIPR	Department of Energy; Los Alamos National Laboratory, Los Alamos NM, Sandia National Laboratory, Albuquerque NM	19.881	1.884	Jan-08	2.130	Nov-08	2.465	Nov-09	Continuing	TBD	
SABRS	MIPR	Classified	31.550	5.200	Jan-08	8.376	Nov-08	34.400	Nov-09	Continuing	TBD	
Completed NDS Development Efforts	Various	Various	13.062	0.000		0.000		0.000		0.000	13.062	
Subtotal Product Development			238.823	29.651		31.676		73.776		Continuing	TBD	0.000
Remarks:												
<u>(U) Support</u> Mission Support	Various	Various	17.294	3.991	Jan-08	4.168	Nov-08	5.225	Nov-09	Continuing	TBD	
Technical Support	Various	Various	22.625	1.826	Jan-08	2.236	Nov-08	2.348	Nov-09	Continuing	TBD	
System Engineering & Integration (SE&I)	Various	El Segundo, CA	0.000	2.647	Jan-08	2.773	Nov-08	2.419	Nov-09	Continuing	TBD	
Completed NDS Support Efforts	Various	Various	5.185	0.000		0.000		0.000		0.000	5.185	
Subtotal Support			45.104	8.464		9.177		9.992		Continuing	TBD	0.000
Remarks:												
<u>(U) Test &amp; Evaluation</u> 17th TS, Schriever AFB CO	Various		0.475	0.164	Jan-08	0.249	Nov-08	0.253	Nov-09	Continuing	TBD	
Subtotal Test & Evaluation			0.475	0.164		0.249		0.253		Continuing	TBD	0.000
Remarks:												
<u>(U) Management</u> Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												

R-1 Line Item No. 213

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Project 2808

Exhibit R-3 (PE 0305913F)

Exhibit R-3, RDT&E Project Cost Analysis

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305913F NUDET Detection System  
(Space)

PROJECT NUMBER AND TITLE

2808 Nuc Detonation Det Sys  
(sensors)

(U) Total Cost	284.402	38.279	41.102	84.021	Continuing	TBD	0.000
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Exhibit R-4, RDT&E Schedule Profile

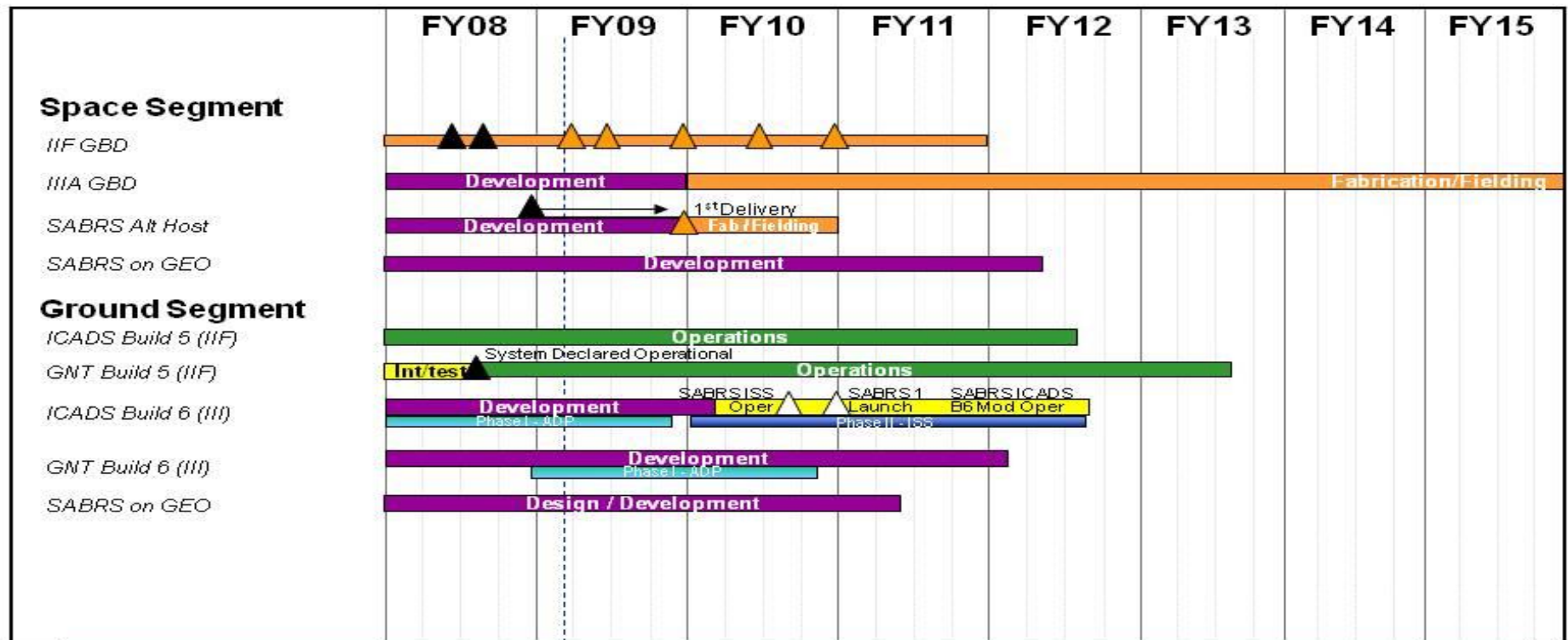
DATE

May 2009

BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0305913F NUDET Detection System  
(Space)

PROJECT NUMBER AND TITLE  
2808 Nuc Detonation Det Sys  
(sensors)



DSP: Defense Support Program      SABRS: Space & Atmospheric Burst Reporting System      GBD: Global Burst Detector  
 SAVE: SABRS Validation Experiment      GNT: Ground NDS Terminal      SBIRS: Space Based InfraRed Systems  
 ICADS: Integrated Correlation & Display System      ISS: Interim Support System

Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305913F NUDET Detection System  
(Space)

PROJECT NUMBER AND TITLE

2808 Nuc Detonation Det Sys  
(sensors)

(U) Schedule Profile

FY 2008

FY 2009

FY 2010

(U) GNT IIF Operational

3Q

(U) SABRS on Alt Host development complete

4Q

(U) ICADS Build 6 Install

1Q

(U) ICADS Build 6 Test

3Q

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**UNCLASSIFIED**

PE NUMBER: 0305924F  
 PE TITLE: National Security Space Office

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0305924F National Security Space Office</b>
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	15.104	7.587	10.634	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
A016 National Security Space Office	15.104	7.587	10.634	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

**(U) A. Mission Description and Budget Item Justification**

The National Security Space Office (NSSO) provides strategic focus and unity of effort across the National Security Space (NSS) enterprise spanning the military, intelligence, civil, and commercial space sectors. NSSO conducts long-range space strategic planning; develops mid- to long-term space architectures; examines trades between space and non-space solutions to user requirements; assesses defense and intelligence space programs for conformity with policies, planning guidance, and architectural decisions; provides technical enterprise engineering; and conducts analyses of space subjects to guide the activities of NSS organizations. The office reports to both the Under Secretary of the Air Force / DoD Executive Agent for Space and the Director of the National Reconnaissance Office. Through them it also advises the leaders of the military services, intelligence community, U.S. Strategic Command, Office of the Secretary of Defense, and Office of the Director of National Intelligence on space matters. NSSO enables better decisions to guide the future of the NSS community and provides requisite knowledge to better leverage space assets more effectively in support of U.S. national objectives and in concert with land, sea, air and cyberspace capabilities.

This program is in Budget Activity 7, Operational System Development, because its architectures and other activities guide the acquisition, deployment, and integration of operational systems.

**(U) B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	10.745	10.797	11.058
(U) Current PBR/President's Budget	15.104	7.587	10.634
(U) Total Adjustments	4.359	-3.210	
(U) Congressional Program Reductions		-3.189	
Congressional Rescissions		-0.021	
Congressional Increases			
Reprogrammings	4.600		
SBIR/STTR Transfer	-0.241		

**(U) Significant Program Changes:**

FY2008: +\$4.6M for National Security Space plan development, program assessments and architecture development

FY2009: -\$3.000M Congressional Program Reduction

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>					PE NUMBER AND TITLE <b>0305924F National Security Space Office</b>			PROJECT NUMBER AND TITLE <b>A016 National Security Space Office</b>		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
A016 National Security Space Office	15.104	7.587	10.634	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

The National Security Space Office (NSSO) provides strategic focus and unity of effort across the National Security Space (NSS) enterprise spanning the military, intelligence, civil, and commercial space sectors. NSSO conducts long-range space strategic planning; develops mid- to long-term space architectures; examines trades between space and non-space solutions to user requirements; assesses defense and intelligence space programs for conformity with policies, planning guidance, and architectural decisions; provides technical enterprise engineering; and conducts analyses of space subjects to guide the activities of NSS organizations. The office reports to both the Under Secretary of the Air Force / DoD Executive Agent for Space and the Director of the National Reconnaissance Office. Through them it also advises the leaders of the military services, intelligence community, U.S. Strategic Command, Office of the Secretary of Defense, and Office of the Director of National Intelligence on space matters. NSSO enables better decisions to guide the future of the NSS community and provides requisite knowledge to better leverage space assets more effectively in support of U.S. national objectives and in concert with land, sea, air and cyberspace capabilities.

This program is in Budget Activity 7, Operational System Development, because its architectures and other activities guide the acquisition, deployment, and integration of operational systems.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) NSS Strategy and enabling activities	1.910	0.963	1.399
(U) NSS Plan development	2.060	1.039	1.478
(U) NSS Program Assessments	2.242	1.113	1.595
(U) Space architecture and study development and support	5.278	2.654	3.583
(U) Architecture transition planning and implementation support	0.748	0.378	0.558
(U) Architecture and enterprise engineering	2.866	1.440	2.021
(U) Total Cost	15.104	7.587	10.634

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	

(U) Not applicable

**(U) D. Acquisition Strategy**

NSSO conducted a full and open competition to award a contract for the technical assistance and management support it uses to execute its space architecture, strategy, development, and planning activities. It will also continue to utilize existing contract vehicles maintained by other DoD organizations for supplemental assistance and support, as required.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0305924F National Security Space Office</b>	<b>PROJECT NUMBER AND TITLE</b> <b>A016 National Security Space Office</b>
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<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
<u>(U) Product Development</u>												
Architecture/other product development	C/CPAF	SAIC, San Diego, CA	14.151	9.762	Dec-07	3.997	Dec-08	6.678	Dec-09	Continuing	TBD	
Architecture/other product development	SS/CPAF	Aerospace Corp., El Segundo, CA	1.300	2.671	Nov-07	1.795	Nov-08	1.982	Nov-09	Continuing	TBD	
Architecture/other product development	Cost (reimbursable)	MITRE, Bedford, MA	1.900	2.671	Oct-07	1.795	Oct-08	1.974	Oct-09	Continuing	TBD	
Subtotal Product Development			17.351	15.104		7.587		10.634		Continuing	TBD	0.000
Remarks:												0
<u>(U) Support</u>												
Not applicable												0.000
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
<u>(U) Test &amp; Evaluation</u>												
Not applicable												0.000
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
<u>(U) Management</u>												
Not applicable												0.000
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
<u>(U) Total Cost</u>			17.351	15.104		7.587		10.634		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

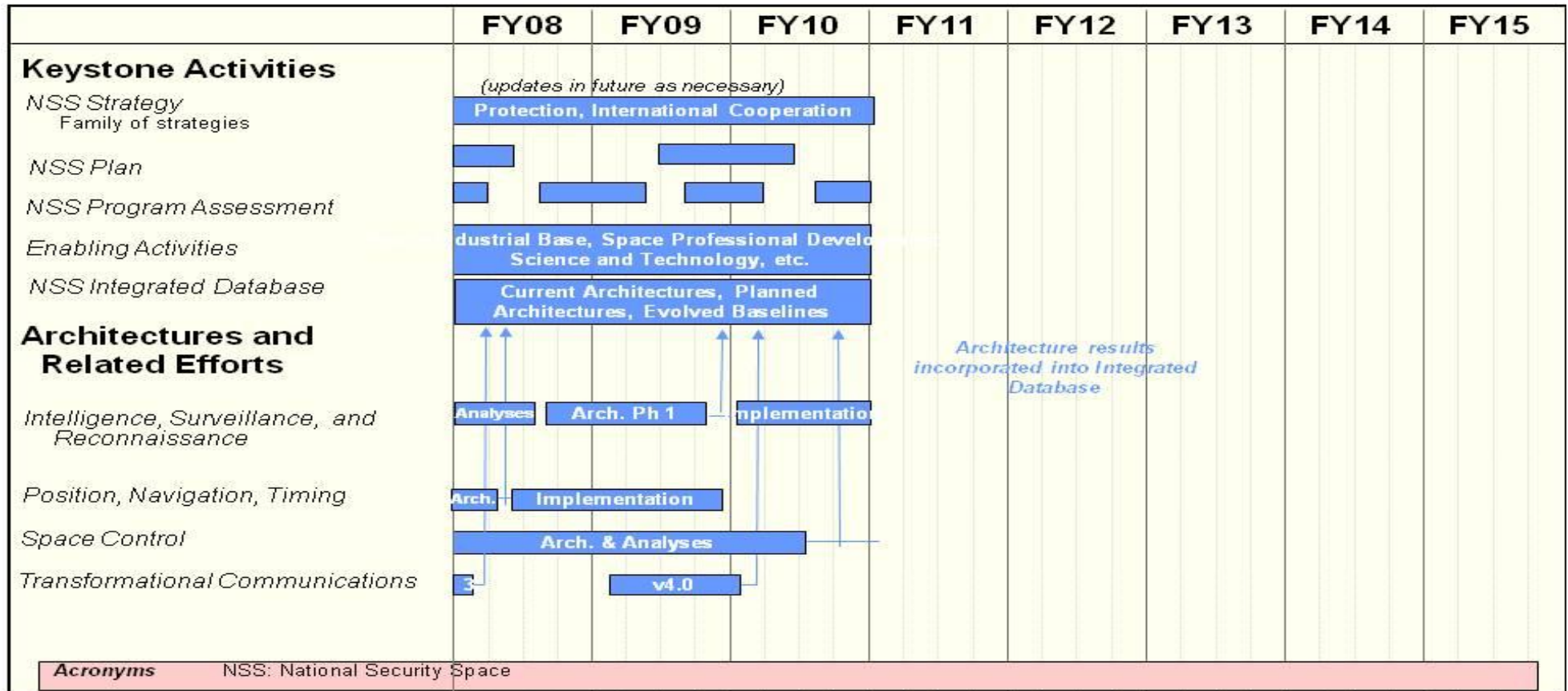
DATE

May 2009

BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0305924F National Security Space Office

PROJECT NUMBER AND TITLE  
A016 National Security Space Office



- Concept activities
- Design / development
- Integration / test
- Production / fielding
- Operations / sustainment
- Key events

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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>May 2009</b>
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BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0305924F National Security Space Office</b>	PROJECT NUMBER AND TITLE <b>A016 National Security Space Office</b>
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	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) <b><u>Schedule Profile</u></b>			
(U) Complete biannual NSS Plan	2Q		2Q
(U) Complete annual NSS Program Assessment	1Q	2Q	1Q
(U) Continue space architecture efforts	1-4Q	1-4Q	1-4Q

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**UNCLASSIFIED**

PE NUMBER: 0305940F  
 PE TITLE: Space Situation Awareness Operations

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0305940F Space Situation Awareness Operations</b>
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	38.679	15.579	54.648	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
A017 Sensor Service Life Extension Programs	38.679	15.579	54.648	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

The GEODSS and Globus II service life extension programs are new starts in FY10.

**(U) A. Mission Description and Budget Item Justification**

Space Situation Awareness (SSA) is knowledge of all aspects of space related to operational sensing. The foundation for space control, SSA encompasses intelligence on adversary space operations; surveillance of all space objects and activities; detailed reconnaissance of specific space assets; monitoring space environmental conditions; monitoring cooperative space assets; and conducting integrated command, control, communications, processing, analysis, dissemination, and archiving activities. This program element fields, upgrades, operates and maintains Air Force sensors and information integration capabilities within the SSA network while companion program element 0604425F Space Awareness System, develops new network sensors and improved information integration capabilities across the network. Activities funded in this program element focus on surveillance of objects in earth orbit to aid tasks including satellite tracking; space object identification; tracking and cataloging; satellite attack warning; notification of satellite flyovers to U.S. forces; space treaty monitoring; and technical intelligence gathering.

The Sensor Life Extension Programs (SLEP) project funds efforts to upgrade and extend the lifetimes of operational Space Situation Awareness (SSA) sensors, as needed. These SLEPs include, but are not limited to, programs which, when combined with routine technological renewal, extend the serviceable life of assets and maintain critical capability by replacing aging and increasingly unsustainable components with modern equipment. SLEPs may incorporate equipment which inherently includes technological advances resulting in enhanced or increased capabilities. In addition, the SLEP itself may be designed to increase capabilities not currently realized. Our current on-going efforts, Eglin, Haystack, GEODDS, and GLOBUS II, are representative of sensor systems upgraded in the SLEP project. As the need arises in the execution year, funds in this project may be used to begin sensor life extension programs on additional efforts.

These efforts are in Budget Activity 7, Operational System Development, because they develop modifications for operational SSA sensors.

Exhibit R-2, RDT&E Budget Item Justification

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305940F Space Situation Awareness Operations

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	23.827	16.166	0.000
(U) Current PBR/President's Budget	38.679	15.579	54.648
(U) Total Adjustments	14.852	-0.587	
(U) Congressional Program Reductions		-0.545	
Congressional Rescissions		-0.042	
Congressional Increases			
Reprogrammings	16.000		
SBIR/STTR Transfer	-1.148		

(U) **Significant Program Changes:**

FY 2008: \$16.0M adjustment to fund Haystack radar antenna cost growth & to accelerate uncapping of radome to mitigate risks of opening during winter.

FY 2010: Adjustments reflect continuing Eglin SLEP and Haystack funding and beginning of GEODSS and Globus II service life extension programs.



**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>					PE NUMBER AND TITLE <b>0305940F Space Situation Awareness Operations</b>			PROJECT NUMBER AND TITLE <b>A017 Sensor Service Life Extension Programs</b>		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
A017 Sensor Service Life Extension Programs	38.679	15.579	54.648	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

Space Situation Awareness (SSA) is knowledge of all aspects of space related to operational sensing. The foundation for space control, SSA encompasses intelligence on adversary space operations; surveillance of all space objects and activities; detailed reconnaissance of specific space assets; monitoring space environmental conditions; monitoring cooperative space assets; and conducting integrated command, control, communications, processing, analysis, dissemination, and archiving activities. This program element fields, upgrades, operates and maintains Air Force sensors and information integration capabilities within the SSA network while companion program element 0604425F Space Awareness System, develops new network sensors and improved information integration capabilities across the network. Activities funded in this program element focus on surveillance of objects in earth orbit to aid tasks including satellite tracking; space object identification; tracking and cataloging; satellite attack warning; notification of satellite flyovers to U.S. forces; space treaty monitoring; and technical intelligence gathering.

The Sensor Life Extension Programs (SLEP) project funds efforts to upgrade and extend the lifetimes of operational Space Situation Awareness (SSA) sensors, as needed. These SLEPs include, but are not limited to, programs which, when combined with routine technological renewal, extend the serviceable life of assets and maintain critical capability by replacing aging and increasingly unsustainable components with modern equipment. SLEPs may incorporate equipment which inherently includes technological advances resulting in enhanced or increased capabilities. In addition, the SLEP itself may be designed to increase capabilities not currently realized. Our current on-going efforts, Eglin, Haystack, GEODDS, and GLOBUS II, are representative of sensor systems upgraded in the SLEP project. As the need arises in the execution year, funds in this project may be used to begin sensor life extension programs on additional efforts.

These efforts are in Budget Activity 7, Operational System Development, because they develop modifications for operational SSA sensors.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Eglin radar life extension engineering design, development, and support	13.601	14.542	15.289
(U) Haystack radar upgrade engineering design, development, and support	25.078	1.037	17.391
(U) GEODSS service life extension program			17.200
(U) Globus II service life extension program			4.768
(U) Total Cost	38.679	15.579	54.648

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Eglin Procurement			0.200							

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

May 2009

BUDGET ACTIVITY

**07 Operational System Development**

PE NUMBER AND TITLE

**0305940F Space Situation Awareness Operations**

PROJECT NUMBER AND TITLE

**A017 Sensor Service Life Extension Programs****(U) D. Acquisition Strategy**

The Eglin SLEP effort is replacing key radar items via an option on the System Engineering, Sustainment and Modernization (SENSOR) contract, competitively awarded to ITT Industries (now ITT Corporation) in 2002. The Air Force uses the SENSOR contract for sustaining and upgrading various Air Force radars, including the Eglin radar.

The Massachusetts Institute of Technology's Lincoln Laboratory (MIT/LL), a non-profit Federally-Funded Research & Development Center, performs the Haystack upgrade effort under a master contract with the Electronics System Center, in conjunction with support from other agencies as required. This effort is classified as applied research under that contract. MIT/LL transferred ownership of the radar to the Air Force but continues to operate it as part of its Lincoln Space Surveillance Complex per contract with the Air Force. MIT/LL will be responsible for operations and sustainment of the upgraded Haystack radar.

The GEODSS SLEP will be awarded as an option on the System Engineering and Sustainment Integrator (SENSOR) contract, competitively awarded to ITT Industries (now ITT Corporation) in 2002. The GEODSS SLEP will use a spiral development and deployment strategy to reduce risk.

The Globus II SLEP will be awarded as an option on the System Engineering and Sustainment Integrator (SENSOR) contract, competitively awarded to ITT Industries (now ITT Corporation) in 2002. The Globus II SLEP will use a spiral development and deployment strategy to reduce risk.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>					<b>PE NUMBER AND TITLE</b> <b>0305940F Space Situation Awareness Operations</b>					<b>PROJECT NUMBER AND TITLE</b> <b>A017 Sensor Service Life Extension Programs</b>		
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<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> Eglin architecture development and life extension	C/CPAF	ITT Corporation, Colorado Springs, CO	13.184	11.285	Nov-07	12.032	Oct-08	12.740	Oct-09	Continuing	TBD	
Haystack radar upgrade design and build	SS/FP-LOE	MIT Lincoln Laboratory, Lexington, MA	12.533	23.230	Nov-07			15.232	Oct-09	Continuing	TBD	
GEODSS design, development and life extension	C/CPAF	ITT Corporation, Colorado Springs, CO	0.000	0.000				14.520	Jan-10	Continuing	TBD	
Globus II development and life extension	C/CPAF	ITT Corporation, Colorado Springs, CO	0.000	0.000				3.719	Jan-10	Continuing	TBD	
Eglin Lincoln Lab technical support	SS/FM-LOE	MIT Lincoln Laboratory, Lexington, MA		0.150	Aug-08	0.120	Nov-09	0.125	Nov-09	Continuing	TBD	
Subtotal Product Development			25.717	34.665		12.152		46.336		Continuing	TBD	0.000
Remarks:												
(U) <u>Support</u> Development review and management/L3	C/FP-LOE	L3 / Engility, Billerica, MA	1.335							Continuing	TBD	
Development review and management/PASS	C/FP-LOE	Odyssey Systems, Wakefield, MA	0.421	0.693	Jan-08	0.922	Feb-09	1.974	Feb-10	Continuing	TBD	
Technical review and management/ETASS	C/FP-LOE	Jacobs Technology, Tullahoma, TN	0.000	1.713	Jan-08	0.830	Jan-09	3.181	Jan-10	Continuing	TBD	
Program Office Support	Various	Electronic Systems Center, Hanscom AFB, MA and Peterson AFB, CO	1.002	1.608	Nov-07	1.601	Nov-09	2.814	Nov-09	Continuing	TBD	
Subtotal Support			2.758	4.014		3.353		7.969		Continuing	TBD	0.000

UNCLASSIFIED

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY		PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE					
<b>07 Operational System Development</b>		<b>0305940F Space Situation Awareness Operations</b>				<b>A017 Sensor Service Life Extension Programs</b>					
Remarks:											
(U)	<u>Test &amp; Evaluation</u>										
	Test Support										
		17th Test Squadron, SAFB Colorado	0.000	0.000	0.074	Mar-09	0.343	Nov-09	Continuing	TBD	
	Subtotal Test & Evaluation		0.000	0.000	0.074		0.343		Continuing	TBD	0.000
Remarks:											
(U)	<u>Management</u>										
	Not applicable								Continuing	TBD	
	Subtotal Management		0.000	0.000	0.000		0.000		Continuing	TBD	0.000
Remarks:											
(U)	Total Cost		28.475	38.679	15.579		54.648		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

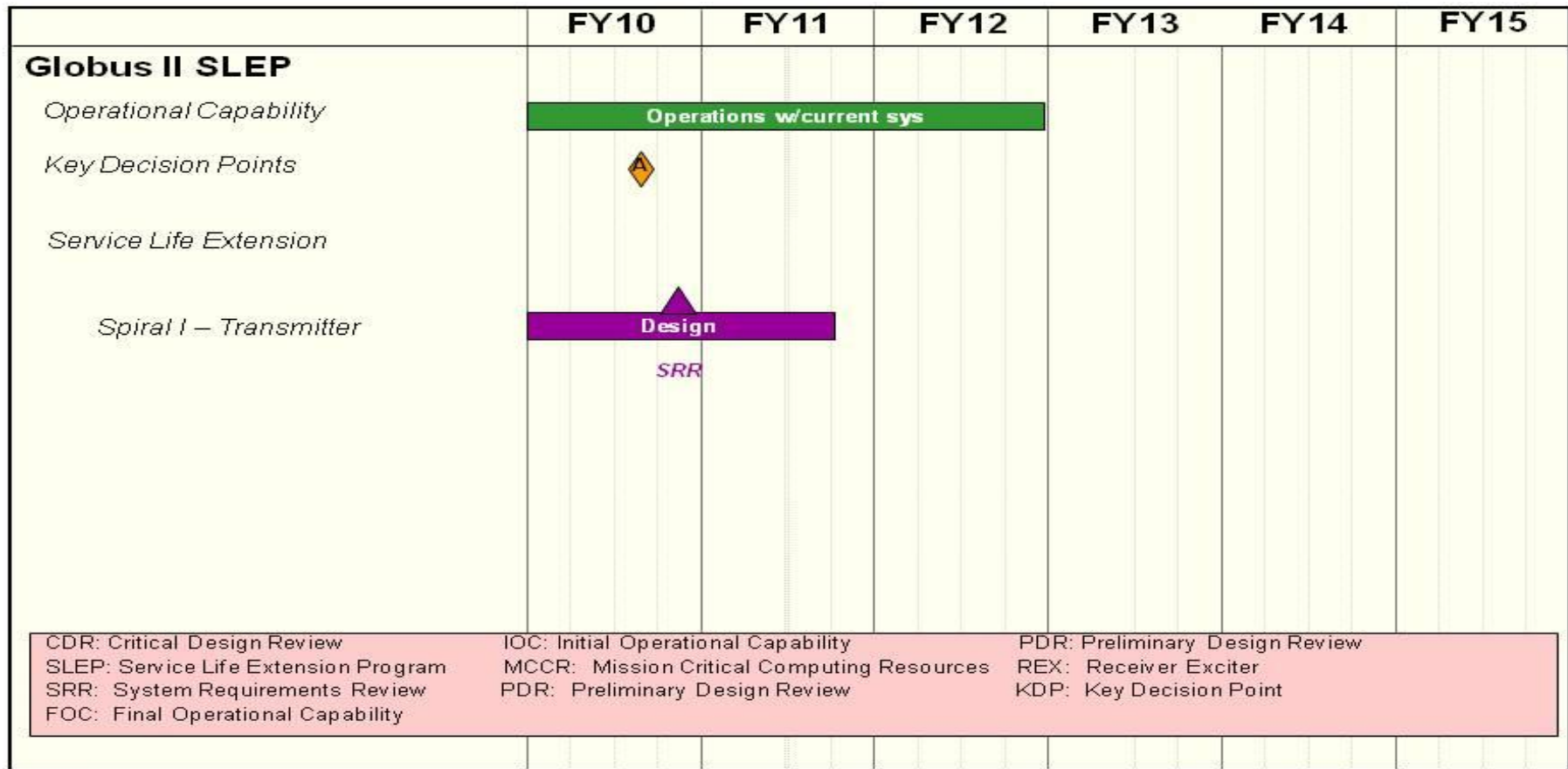
DATE

May 2009

BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0305940F Space Situation Awareness Operations

PROJECT NUMBER AND TITLE  
A017 Sensor Service Life Extension Programs



Concept activities  
Production / fielding

Design / development  
Operations / sustainment

Integration / test  
Key events

Exhibit R-4, RDT&E Schedule Profile

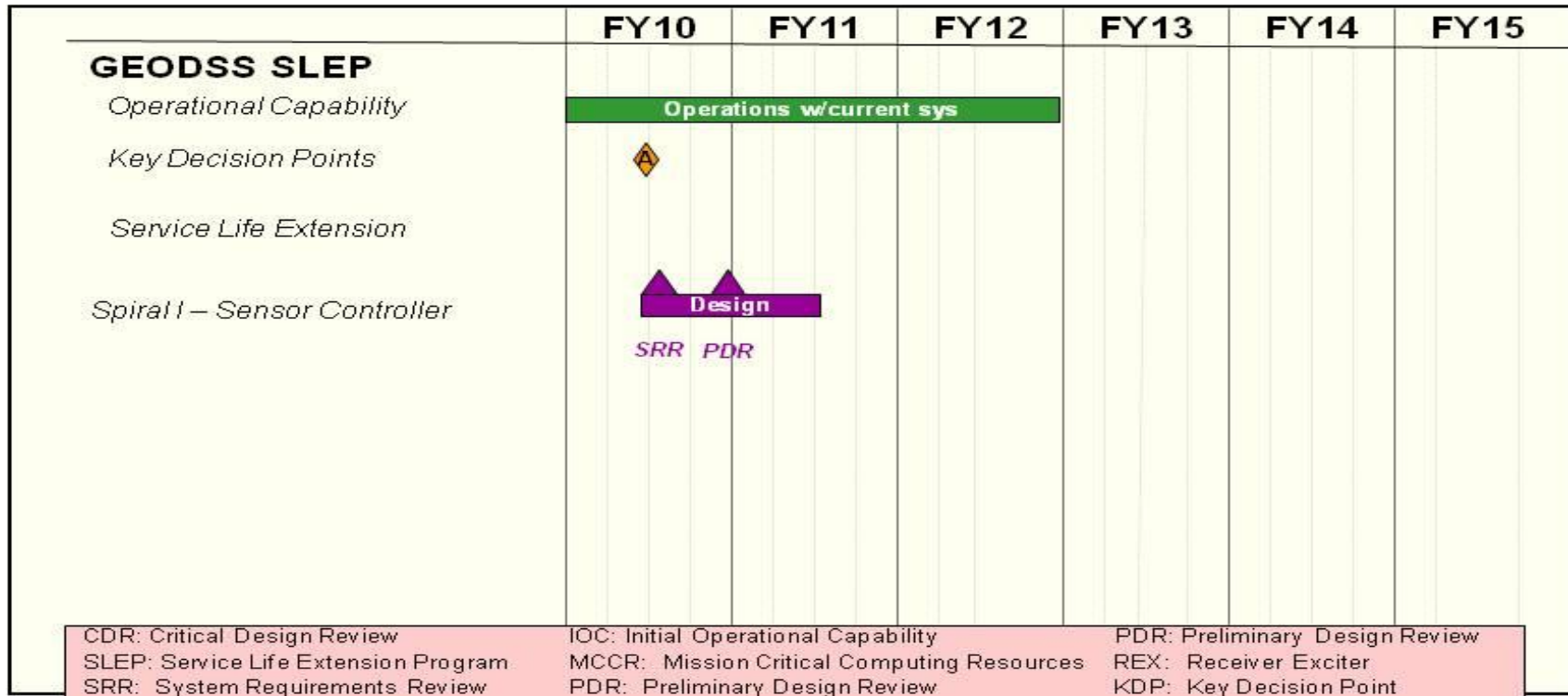
DATE

May 2009

BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0305940F Space Situation Awareness Operations

PROJECT NUMBER AND TITLE  
A017 Sensor Service Life Extension Programs



CDR: Critical Design Review      IOC: Initial Operational Capability      PDR: Preliminary Design Review  
 SLEP: Service Life Extension Program      MCCR: Mission Critical Computing Resources      REX: Receiver Exciter  
 SRR: System Requirements Review      PDR: Preliminary Design Review      KDP: Key Decision Point  
 FOC: Final Operational Capability

■ Concept activities      ■ Design / development      ■ Integration / test  
■ Production / fielding      ■ Operations / sustainment      ▲ ◆ Key events

Exhibit R-4, RDT&E Schedule Profile

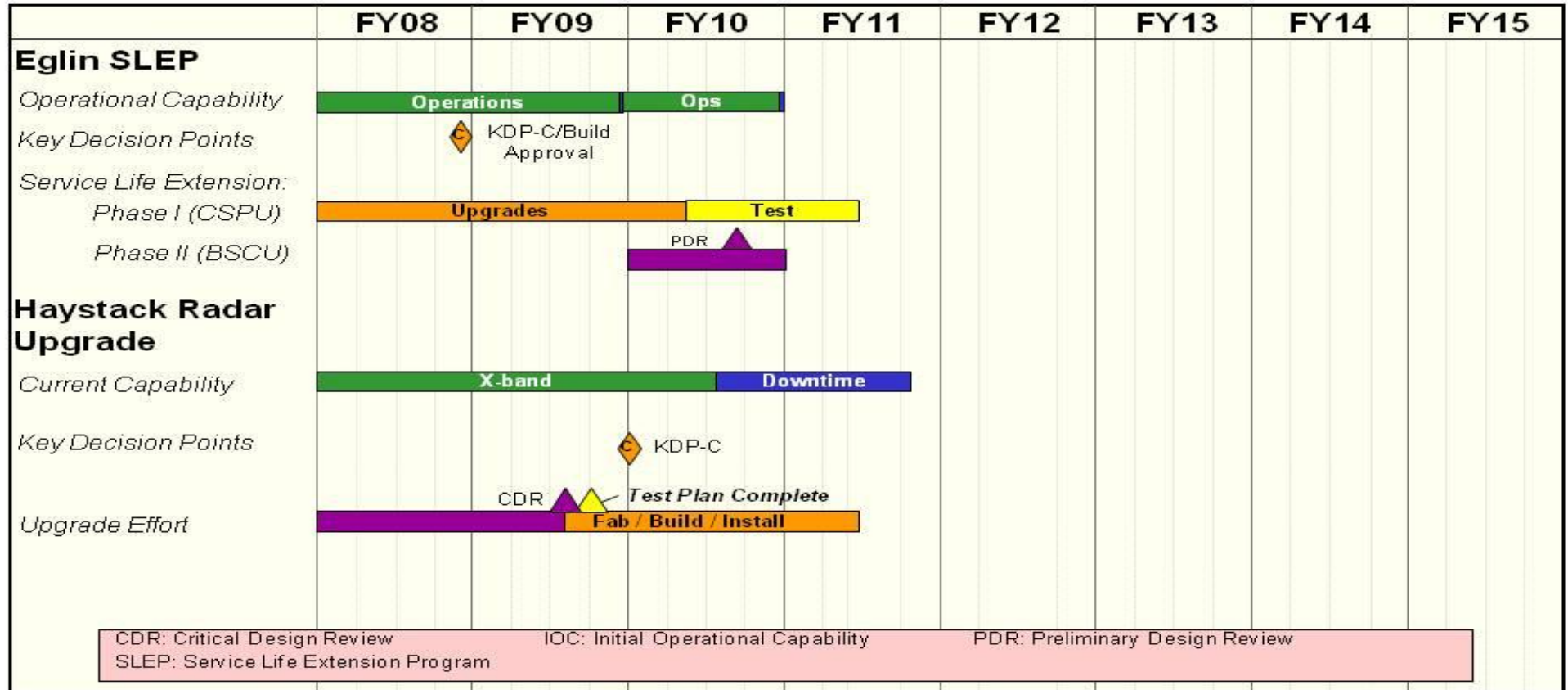
DATE

May 2009

BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0305940F Space Situation Awareness Operations

PROJECT NUMBER AND TITLE  
A017 Sensor Service Life Extension Programs



- Concept activities
- Production / fielding
- Design / development
- Operations / sustainment
- Integration / test
- Key events

Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0305940F Space Situation Awareness Operations</b>	PROJECT NUMBER AND TITLE <b>A017 Sensor Service Life Extension Programs</b>
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(U) <u>Schedule Profile</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Eglin KDP C/Build Approval	4Q		
(U) Eglin Phase II PDR			3Q
(U) Haystack CDR		3Q	
(U) Haystack KDP C			1Q
(U) Haystack FAB/Build/Install		3-4Q	1-4Q
(U) GEODSS SLEP KDP-A			2Q
(U) GEODSS Spiral I SRR			3Q
(U) GEODSS Spiral I PDR			4Q
(U) Globus II SLEP KDP-A			3Q
(U) Globus II Spiral I SRR			4Q



<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>May 2009</b>
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BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0307141F NASS, IO TECH INTEGRATION &amp; TOOL DEV</b>
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	21.348	15.683	30.076	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
4871 Information Operations Technology	21.348	15.683	30.076	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

FY08 congressional supplemental funding was provided for a classified cyber effort.

**(U) A. Mission Description and Budget Item Justification**

The Joint Functional Component Command Network Warfare (JFCC-NW) responsibilities include planning, integrating, and coordinating computer network warfare capabilities; operational and tactical level planning and day-to-day employment of assigned and attached Computer Network Attack (CNA) forces; integration of CNA forces with Computer Network Defense (CND) forces and planning and coordination of network attack capabilities that have trans-regional effects or that directly support national objectives; providing CNA support for assigned missions and CNA planning and integration in support of other combatant commanders as directed.

This project funds research, development, testing and systems modifications of the technologies and capabilities that allow US Strategic Command (USSTRATCOM) to plan, facilitate coordination and integration, deconflict, and synchronize DoD Computer Network Operations (CNO). Activities also include studies and analysis to support both current program planning and execution and future program planning. This program also provides the ability for other Combatant Commanders (COCOMs) to conduct CNO planning. The JFCC-NW accomplishes part of its mission via systems engineering, testing and development across two primary functions: Net Warfare (NW) Assurance, Risk Assessment, and Safeguards (NWARs); and, requirements, capabilities, and gap analysis. Specifically, the NWARs function provides world-class "assurance-in-depth" products and services enabling COCOMs to confidently, legally, safely, and securely apply CNA capabilities as one of the elements of national power. The NWARs function is further subdivided into NW Risk Assessment and Mitigation (NRAM), Computer Network Operations Test and Evaluation (CNOTE), and computer network technical assurance program. Further detail is classified and can be provided upon request.

JFCC-NW provides support for headquarters USSTRATCOM and other geographic and functional COCOMs' exercise, wargames, and experimentation requirements. JFCC-NW integrates and synchronizes its effort with USSTRATCOM's development of network warfare military utility assessments, research, and development efforts, and advocacy of capability needs for the Joint Capabilities Integration Development System (JCIDS) process.

JFCC-NW supports the Information Operations (IO) community by providing a cadre of experts on CNA technology and its use and renders technical assistance in the development, review and coordination of CNA plans and operations.

JFCC-NW coordinates cyber warfare capability research and development in order to achieve global military objectives. JFCC-NW specifically is responsible for advocating on behalf of the COCOMs for cyber warfare capability development; partnering with the cyber warfare development community to seek resource advocacy from STRATCOM and fund cyber warfare capability development with Service sponsorship and coordination; focusing capability developer's efforts on addressing COCOM requirements; increasing the collaboration between Computer Network Attack (CNA) developers, intelligence providers, and operational planners to shorten the development cycle; transferring end-result capabilities to a Service Component or other organization so that capability can be operationalized; supporting research and development of CNA and Computer Network Defense-Response Action (CND-RA) capabilities and tools required by JFCC-NW to conduct operational planning

Exhibit R-2, RDT&E Budget Item Justification

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0307141F NASS, IO TECH INTEGRATION & TOOL DEV

activities, to include intelligence analysis and situational awareness aids, and exercise command and control of assigned cyber forces for mission execution.

JFCC-NW supports research and development of CNA/CND-RA capabilities based upon COCOM and JFCC-NW operational requirements to include supporting and conducting Quick Reaction Capability (QRC) development of CNA/CND-RA capabilities not currently under development in the Services or NSA. A small in-house development team will perform research in public domain, and harvest available Internet tools that can be quickly documented, evaluated, modified (if necessary), and operationally tested in support of ongoing JFCC-NW operations. Additionally, this team will "re-tool" existing CNA/CND-RA capabilities to satisfy immediate JFCC-NW operational needs. This effort will provide a QRC development team that can support "gap" development for CNA/CND-RA operations as required.

Special Projects, Vulnerability Assessment provides for electric transmission analytical support to exploitable vulnerabilities. This program is Budget Activity 7, Operational System Development, because it studies, develops and fields IO technologies.

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	15.582	15.726	15.730
(U) Current PBR/President's Budget	21.348	15.683	30.076
(U) Total Adjustments	5.766	-0.043	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.043	
Congressional Increases			
Reprogrammings	6.204		
SBIR/STTR Transfer	-0.438		

(U) **Significant Program Changes:**

Congressional supplemental funding was provided in FY08 for a classified cyber effort.

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>					PE NUMBER AND TITLE <b>0307141F NASS, IO TECH INTEGRATION &amp; TOOL DEV</b>			PROJECT NUMBER AND TITLE <b>4871 Information Operations Technology</b>		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
4871 Information Operations Technology	21.348	15.683	30.076	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

The Joint Functional Component Command Network Warfare (JFCC-NW) responsibilities include planning, integrating, and coordinating computer network warfare capabilities; operational and tactical level planning and day-to-day employment of assigned and attached Computer Network Attack (CNA) forces; integration of CNA forces with Computer Network Defense (CND) forces and planning and coordination of network attack capabilities that have trans-regional effects or that directly support national objectives; providing CNA support for assigned missions and CNA planning and integration in support of other combatant commanders as directed.

This project funds research, development, testing and systems modifications of the technologies and capabilities that allow US Strategic Command (USSTRATCOM) to plan, facilitate coordination and integration, deconflict, and synchronize DoD Computer Network Operations (CNO). Activities also include studies and analysis to support both current program planning and execution and future program planning. This program also provides the ability for other Combatant Commanders (COCOMs) to conduct CNO planning. The JFCC-NW accomplishes part of its mission via systems engineering, testing and development across two primary functions: Net Warfare (NW) Assurance, Risk Assessment, and Safeguards (NWARs); and, requirements, capabilities, and gap analysis. Specifically, the NWARS function provides world-class "assurance-in-depth" products and services enabling COCOMs to confidently, legally, safely, and securely apply CNA capabilities as one of the elements of national power. The NWARS function is further subdivided into NW Risk Assessment and Mitigation (NRAM), Computer Network Operations Test and Evaluation (CNOTE), and computer network technical assurance program. Further detail is classified and can be provided upon request.

JFCC-NW provides support for headquarters USSTRATCOM and other geographic and functional COCOMs' exercise, wargames, and experimentation requirements. JFCC-NW integrates and synchronizes its effort with USSTRATCOM's development of network warfare military utility assessments, research, and development efforts, and advocacy of capability needs for the Joint Capabilities Integration Development System (JCIDS) process.

JFCC-NW supports the Information Operations (IO) community by providing a cadre of experts on CNA technology and its use and renders technical assistance in the development, review and coordination of CNA plans and operations.

JFCC-NW coordinates cyber warfare capability research and development in order to achieve global military objectives. JFCC-NW specifically is responsible for advocating on behalf of the COCOMs for cyber warfare capability development; partnering with the cyber warfare development community to seek resource advocacy from STRATCOM and fund cyber warfare capability development with Service sponsorship and coordination; focusing capability developer's efforts on addressing COCOM requirements; increasing the collaboration between Computer Network Attack (CNA) developers, intelligence providers, and operational planners to shorten the development cycle; transferring end-result capabilities to a Service Component or other organization so that capability can be operationalized; supporting research and development of CNA and Computer Network Defense-Response Action (CND-RA) capabilities and tools required by JFCC-NW to conduct operational planning activities, to include intelligence analysis and situational awareness aids, and exercise command and control of assigned cyber forces for mission execution.

Exhibit R-2a, RDT&E Project Justification

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0307141F NASS, IO TECH  
INTEGRATION & TOOL DEV

PROJECT NUMBER AND TITLE

4871 Information Operations  
Technology

JFCC-NW supports research and development of CNA/CND-RA capabilities based upon COCOM and JFCC-NW operational requirements to include supporting and conducting Quick Reaction Capability (QRC) development of CNA/CND-RA capabilities not currently under development in the Services or NSA. A small in-house development team will perform research in public domain, and harvest available Internet tools that can be quickly documented, evaluated, modified (if necessary), and operationally tested in support of ongoing JFCC-NW operations. Additionally, this team will "re-tool" existing CNA/CND-RA capabilities to satisfy immediate JFCC-NW operational needs. This effort will provide a QRC development team that can support "gap" development for CNA/CND-RA operations as required.

Special Projects, Vulnerability Assessment provides for electric transmission analytical support to exploitable vulnerabilities. This program is Budget Activity 7, Operational System Development, because it studies, develops and fields IO technologies.

(U) **B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) NRAM, CNOTE & Technical Assurance Program	11.219	8.137	10.076
(U) Requirements, Capabilities and Gap Analysis	10.129	7.346	12.000
(U) Lab Redesign & Upgrades	0.000	0.200	8.000
(U) Total Cost	21.348	15.683	30.076

(U) **C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Joint HQ Information Operations, Operations and Maintenance, AF PE 0307141F	16.072	8.624	0.000	0.000	0.000	0.000	0.000	0.000		24.696

Note: all USSTRATCOM IO-related O&M funds were consolidated in PE 28056F-Service Support to STRATCOM IO, effective FY 2010

(U) **D. Acquisition Strategy**

Contracts will be awarded under full and open competition whenever possible. Variations of both Fixed Price (FP) and Cost Plus (CP) contracting vehicles will be used.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE				
<b>07 Operational System Development</b>				<b>0307141F NASS, IO TECH INTEGRATION &amp; TOOL DEV</b>					<b>4871 Information Operations Technology</b>				
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>	
(U) <u>J81-NWARS</u>													
NRAM, CNOTE, & Technical Assurance Program Network	CPFF	NSA	14.624	11.219	Oct-07	8.137	Oct-08	10.076	Oct-09	Continuing	TBD	TBD	
Network Warfare Lab Upgrades	CPFF	NSA	0.500	0.000		0.200	Oct-08	0.000		Continuing	TBD	TBD	
Subtotal J81-NWARS			15.124	11.219		8.337		10.076		Continuing	TBD	TBD	
Remarks:	"Network Warfare Lab Upgrades" transfers to "Computer Network Attack Lab" (below) effective FY 2010												
(U) <u>J82</u>													
Requirements, Capabilities and Gap Analysis	Various	NSA/Other Msn Partners	27.242	10.129	Oct-07	7.346	Oct-08	12.000	Oct-09	Continuing	TBD	TBD	
Subtotal J82			27.242	10.129		7.346		12.000		Continuing	TBD	TBD	
Remarks:													
(U) <u>J8-CNA Lab</u>													
Computer Network Attack Lab	Various	NSA/Others						8.000	Oct-09	Continuing	TBD	TBD	
Subtotal J8-CNA Lab			0.000	0.000		0.000		8.000		Continuing	TBD	TBD	
Remarks:													
(U) Total Cost			42.366	21.348		15.683		30.076		Continuing	TBD	TBD	

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

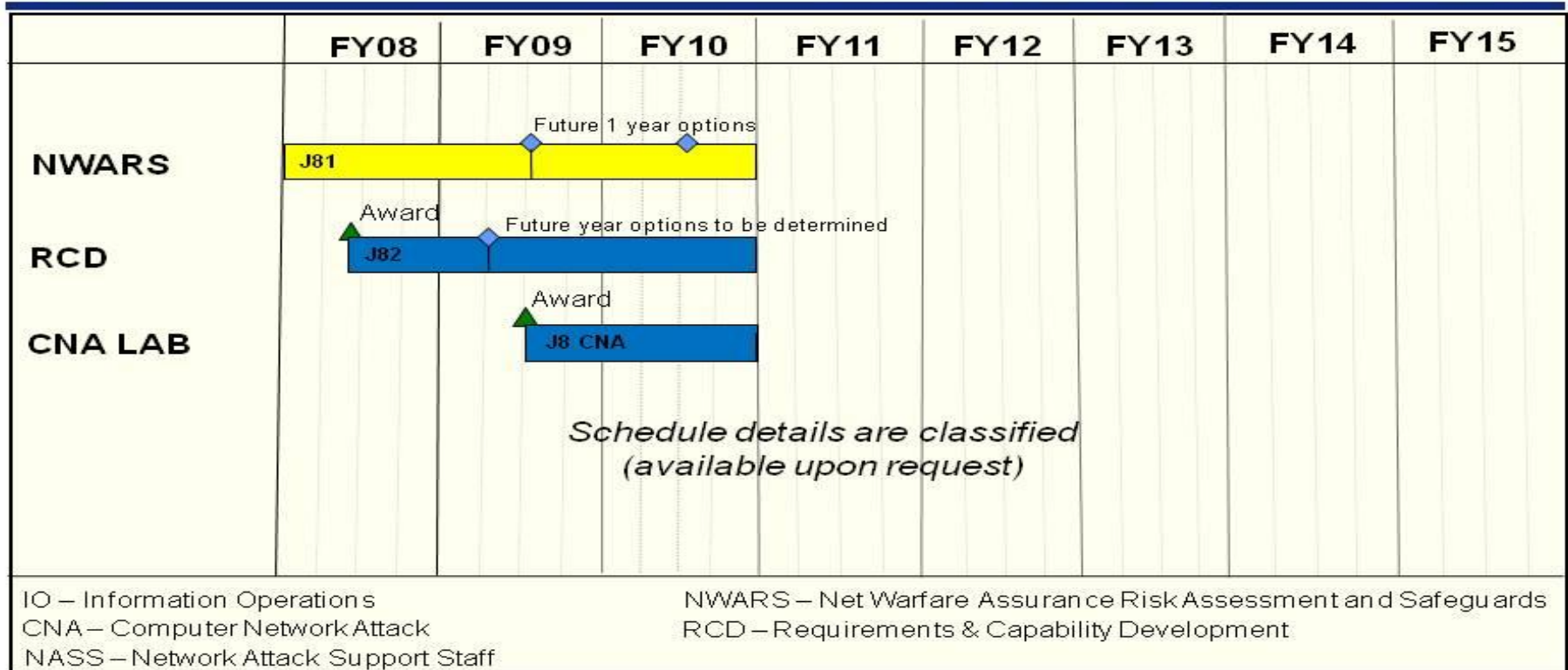
BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0307141F NASS, IO TECH  
INTEGRATION & TOOL DEV

PROJECT NUMBER AND TITLE  
4871 Information Operations  
Technology



# JFCC-NW NASS IO TECH INTEGRATION & TOOL DEVELOPMENT



Concept activities
  Integrate / test
 
 Key events

PB10 R-Docs

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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0307141F NASS, IO TECH INTEGRATION &amp; TOOL DEV</b>	<b>PROJECT NUMBER AND TITLE</b> <b>4871 Information Operations Technology</b>
--	--	--

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) <b><u>Schedule Profile</u></b>			
(U) J81 -Net Warfare Assurance, Risk Assessment and Safeguards	1-4Q	1-4Q	1-4Q
(U) J82 -Requirements and Capability Development	2-4Q	1-4Q	1-4Q
(U) J8 - Computer Network Attack Lab		3-4Q	1-4Q

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0308699F Shared Early Warning System</b>
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	3.044	3.143	3.082	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
4838 Shared Early Warning System	3.044	3.143	3.082	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

(U) **A. Mission Description and Budget Item Justification**

The Shared Early Warning System (SEWS) is the result of Presidential foreign policy initiatives beginning in 1996. The SEWS continues to provide Theater Combatant Commanders and foreign nation partners direct operational benefit by improving the architectural design and equipment thereby providing enhanced mission capabilities (i.e., expanding coverage, integration with active defense systems, & radar integration,). Foreign partner arrangements are negotiated with individual countries on a bilateral basis to provide selected region-specific missile warning information. To enhance mission capability the SEWS program tests: the Integrated Broadcast Service (IBS) migration to Common Interactive Broadcast (CIB), mandatory crypto upgrades, SEWS integration with various radar systems, and the transition to "coalition-based" warning. SEWS utilizes Federally Funded Research & Development Centers (FFRDC), Engineering and Technology Acquisition Support Services (ETASS), and Advisory and Assistance Services (A&AS) contractors support design, development, and acquisition of a common SEWS architecture to enhance mission capability of existing and future partners; enhance development of a multi-lingual, web-based infrastructure to provide Pre-Launch Notification System information; site preparation for additional systems, as required, and posture for the design, development, and test of a Joint Data Exchange Center (JDEC) in Moscow, Russia.

Activities also include studies and analysis to support both current program planning and execution and future program planning.

This program is in Budget Activity 7 - Operational System Development, because it supports work on currently operating systems and/or upgrades still in engineering development.

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	3.127	3.152	3.134
(U) Current PBR/President's Budget	3.044	3.143	3.082
(U) Total Adjustments	-0.083	-0.009	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.009	
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer	-0.083		
(U) <b><u>Significant Program Changes:</u></b>			

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>							PE NUMBER AND TITLE <b>0308699F Shared Early Warning System</b>		PROJECT NUMBER AND TITLE <b>4838 Shared Early Warning System</b>	
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
4838 Shared Early Warning System	3.044	3.143	3.082	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

The Shared Early Warning System (SEWS) is the result of Presidential foreign policy initiatives beginning in 1996. The SEWS continues to provide Theater Combatant Commanders and foreign nation partners direct operational benefit by improving the architectural design and equipment thereby providing enhanced mission capabilities (i.e., expanding coverage, integration with active defense systems, & radar integration). Foreign partner arrangements are negotiated with individual countries on a bilateral basis to provide selected region-specific missile warning information. To enhance mission capability the SEWS program tests: the Integrated Broadcast Service (IBS) migration to Common Interactive Broadcast (CIB), mandatory crypto upgrades, SEWS integration with various radar systems, and the transition to "coalition-based" warning. SEWS utilizes Federally Funded Research & Development Centers (FFRDC), Engineering and Technology Acquisition Support Services (ETASS), and Advisory and Assistance Services (A&AS) contractors support design, development, and acquisition of a common SEWS architecture to enhance mission capability of existing and future partners; enhance development of a multi-lingual, web-based infrastructure to provide Pre-Launch Notification System information; site preparation for additional systems, as required, and posture for the design, development, and test of a Joint Data Exchange Center (JDEC) in Moscow, Russia.

Activities also include studies and analysis to support both current program planning and execution and future program planning.

This program is in Budget Activity 7 - Operational System Development, because it supports work on currently operating systems and/or upgrades still in engineering development.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Accomplishments/Planned Program			
(U) Continue SEWS design, development, and test efforts to include but not limited to: SEWS common architecture, SEWS initiatives as identified by theater commanders, investigate evolving technologies to enhance and posture for possible deployment of the JDEC system in Moscow and development of a multi-lingual, web-based infrastructure to provide Pre-Launch Notification System information and site preparation for additional systems, as required.	3.044	3.143	3.082
(U) Total Cost	3.044	3.143	3.082

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Other APPN										
(U) OPAF (PE 0308699F, Comm		0.253	0.242						Continuing	TBD

Exhibit R-2a, RDT&E Project Justification

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0308699F Shared Early Warning System

PROJECT NUMBER AND TITLE

4838 Shared Early Warning System

(U) C. Other Program Funding Summary (\$ in Millions)

Elect Mods)

(U) Operations and Maintenance AF	6.291	7.199	6.711	Continuing	TBD
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(U) D. Acquisition Strategy

The acquisition strategy builds on existing capabilities, using evolutionary acquisition and spiral development, to modernize and sustain SEWS.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>07 Operational System Development</b>				<b>0308699F Shared Early Warning System</b>					<b>4838 Shared Early Warning System</b>			
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
Lockheed Martin	C/CPAF	Colorado Springs, CO	13.573	1.105	Oct-07	1.021	Oct-08	1.050	Oct-09	Continuing	TBD	TBD
Navy	MIPR	San Diego, CA	1.391	0.336	Jan-08	0.346	Jan-09	0.350	Feb-10	Continuing	TBD	TBD
Various Ctrs/Gov Agencies	MIPR	Colorado Springs, CO	4.590	0.800	Jan-08	1.239	Jan-09	1.134	Jan-10	Continuing	TBD	TBD
Subtotal Product Development			19.554	2.241		2.606		2.534		Continuing	TBD	TBD
Remarks:												
(U) <u>Support</u>												
MITRE	SS/CPFF	Colorado Springs, CO	3.950	0.160	Oct-07	0.161	Oct-08	0.168	Oct-09	Continuing	TBD	TBD
ETASS	C/T&M	Colorado Springs, CO	6.152	0.575	Oct-07	0.351	Jan-09	0.365	Jan-10	Continuing	TBD	TBD
PMA	N/A	Colorado Springs, CO	1.162	0.068	Oct-07	0.025	Oct-08	0.015	Oct-09	Continuing	TBD	TBD
Subtotal Support			11.264	0.803		0.537		0.548		Continuing	TBD	TBD
Remarks:												
(U) Total Cost			30.818	3.044		3.143		3.082		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0308699F Shared Early Warning System

PROJECT NUMBER AND TITLE  
4838 Shared Early Warning System



# SEWS Program Schedule

U.S. AIR FORCE

Activity	FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY15
Spiral development of common system architecture								
<p>Schedule reflects planned software drops every six months, stemming from spiral development schedule and used to keep Combatant Commanders' SEWS capabilities in step with those acquired by partner nations.</p>								
Radiant Mercury 4.5.2 Upgrade				Installs complete				
GCCS 4.2 Preparation Study			Initial report			Final Report Delivered		
GCCS 4.2 Architecture Design								
GCCS 4.2 Procurement								

Concept activities  
 Production / fielding

Design / development  
 Pre-Production

Integration / test  
 Key events

*Integrity - Service - Excellence*

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**Exhibit R-4a, RDT&E Schedule Detail**

DATE

**May 2009**

BUDGET ACTIVITY

**07 Operational System Development**

PE NUMBER AND TITLE

**0308699F Shared Early Warning System**

PROJECT NUMBER AND TITLE

**4838 Shared Early Warning System**

**(U) Schedule Profile**

(U) Spiral development of common system architecture

(U) Radiant Mercury 4.5.2 Upgrade

(U) GCCS 4.2 Preparation Study

FY 2008

1,3Q

4Q

FY 2009

1,3Q

FY 2010

1-3Q

1Q

1Q

**UNCLASSIFIED**

PE NUMBER: 0401115F  
 PE TITLE: C-130 AIRLIFT SQUADRONS

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>May 2009</b>
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BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0401115F C-130 AIRLIFT SQUADRONS</b>
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	233.309	179.272	201.250	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
4885 Avionics Modernization Program (AMP)	229.732	172.092	124.907	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5243 C-130 Initiatives	3.577	7.180	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5362 AMP Phase II	0.000	0.000	76.343	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

**(U) A. Mission Description and Budget Item Justification**

C-130 Airlift Squadrons' Program Element currently contains three Budget Program Activity Codes (BPACs): C-130 Avionics Modernization Program (AMP), C-130 AMP Phase II and C-130 Initiatives.

The C-130 Avionics Modernization Program (AMP) consolidates and installs the mandated AF Navigation/Safety mods, the Global Air Traffic Management (GATM) systems [now referred to as Communications Navigation Surveillance/Air Traffic Management (CNS/ATM)] and the C-130 Broad Area Review requirements on 221 of the AF's Combat Delivery C-130s. These mandated mods are incorporated with various other Reliability, Maintainability, and Sustainability (RM&S) upgrades to include: replacement of the radar, compasses, dual autopilots, dual flight management systems and HF/UHF/VHF data links. AMP will allow this fleet complete access to the CNS/ATM-mandated national and international air space for the foreseeable future. See BPAC # 674885.

C-130 Initiatives is where the AF puts C-130 RDT&E funding for Congressional adds and new programs not covered by C-130 AMP or C-130 AMP Phase II. See BPAC# 675362.

C-130 AMP Phase II consolidates and installs the mandated AF Navigation/Safety mods, the Global Air Traffic Management (GATM) systems [now referred to as Communications Navigation Surveillance/Air Traffic Management (CNS/ATM)] and the C-130 Broad Area Review requirements onto the 82 Special Mission C-130 and 47 C-130H1 Combat Delivery aircraft that were transferred into an AMP separate program following AMP's Jun 07 Nunn-McCurdy certification. See BPAC # 675362.

The C-130 AMP and AMP Phase II projects consist of low technical risk efforts supporting a stable design that has been proven in flight test and therefore was assigned Budget Activity Code 07. AMP Phase II is a new start effort in FY2010.

Note: funding for the C/EC/WC-130J fleets are not included here.

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0401115F C-130 AIRLIFT SQUADRONS

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	251.669	179.760	129.164
(U) Current PBR/President's Budget	233.309	179.272	201.250
(U) Total Adjustments	-18.360	-0.488	
(U) Congressional Program Reductions	-0.054		
Congressional Rescissions	-1.595	-0.488	
Congressional Increases			
Reprogrammings	-9.966		
SBIR/STTR Transfer	-6.745		
(U) <u>Significant Program Changes:</u>			
Increase in FY 10 funding is because of AMP Phase II New Start			



## Exhibit R-2a, RDT&amp;E Project Justification

DATE

May 2009

BUDGET ACTIVITY		PE NUMBER AND TITLE						PROJECT NUMBER AND TITLE		
<b>07 Operational System Development</b>		<b>0401115F C-130 AIRLIFT SQUADRONS</b>						<b>4885 Avionics Modernization Program (AMP)</b>		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
4885 Avionics Modernization Program (AMP)	229.732	172.092	124.907	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

To date, AMP has completed all Critical Design Reviews (CDR) for hardware and the majority of the software requirements. Developmental flight test, which began in Sep 06, will complete in Nov 09. Boeing completed the initial production software build in August 2008; several Flight Test Build (FTB) upgrades will continue into 2009. Retrofit of the first two test aircraft to production configuration will commence in June 2009 and be complete by 4th quarter FY10 to support IOT&E. Developmental efforts for the AMP training requirements will continue through FY13. In addition, the C-130 AMP contract allows for special mission analysis, studies, and engineering effort in support of additional Mission Design Series (MDS) and planning for future block upgrades.

The C-130 Avionics Modernization Program (AMP) consolidates and installs the mandated AF Navigation/Safety modifications, the Communications Navigation Surveillance/Air Traffic Management (CNS/ATM) capabilities and the C-130 Broad Area Review requirements on 221 of the AF's Combat Delivery C-130s. These mandated modifications are incorporated with various other Reliability, Maintainability, and Sustainability (RM&S) upgrades to include: installation of new weather radars, aircrew displays, dual autopilots, dual flight management systems and HF/UHF/VHF radios/data links. A C-130 AMP-equipped aircraft will be able to safely and effectively operate worldwide in today's and tomorrow's airspace. In addition to meeting CNS/ATM and Navigation/Safety requirements, AMP will also lower the cost of ownership and increase survivability of the Mobility Air Forces' (MAF) C-130 Combat Delivery fleet.

This fleet consists of three different types of C-130 aircraft that will be modified by the AMP (C-130H2, H2.5, and H3). Within each of these types, multiple different configurations exist. Today, these different models and cockpit configurations create significant logistics support and aircrew training inefficiencies. Also, these differences greatly complicate aircrew and aircraft scheduling and interoperability at forward operating locations. C-130 AMP standardizes the cockpit configurations and avionics suites for these different variants into a single cockpit configuration by installing a core avionics package with a common cockpit layout, thus eliminating many of these significant logistics, interoperability, and training problems. AMP's new hardware resolves the vast majority of the fleet's Diminishing Manufacturing Sources (DMS) issues. Boeing's DMS plan will be implemented during the production phases to resolve future DMS issues. Shown here are RDT&E funds for only C-130 AMP. (Note: The C/EC/WC-130J fleets are separately funded and not included here.)

The SDD contract was awarded to The Boeing Company on 30 July 2001. An Integrated Baseline Review (IBR) was conducted in January 2002. From FY02-05, the combination of funding and requirements instability, coupled with increases in prime contractor development costs pushed AMP into reportable cost and schedule breaches. With the completion of an Air Force Service Cost Position in October 2006, a major cost deviation was confirmed. In December 2006, a Program Deviation Report (PDR) was issued and a critical Nunn-McCurdy breach was formalized in February 2007.

In June 2007, USD (AT&L) recertified AMP to Congress-albeit at a reduced profile of 221 aircraft, comprising the majority of the AMC/ANG/AFRC Combat Delivery fleets. De-scoped aircraft included 166 Special Mission and C-130H1 Combat Delivery aircraft. These aircraft will be addressed in a separate modification program, C-130 AMP Phase II.

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0401115F C-130 AIRLIFT SQUADRONS</b>	<b>PROJECT NUMBER AND TITLE</b> <b>4885 Avionics Modernization Program (AMP)</b>
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C-130 AMP is currently undergoing Developmental Test & Evaluation (DT&E). The C-130 H2 (AMP 1) began ground tests in FY06 and first flight occurred in September 2006. In March 2007, the C-130 H2.5 (AMP 2) joined the test fleet after its successful modification. The C-130 H3 (AMP 3) was inducted for Trial Installation in November 2007 with first flight in January 2009. All aircraft DT&E requirements will be complete in the August 2009 timeframe, with the program then postured for transition to the Initial Operational Test and Evaluation (IOT&E) phase.

This project consists of low technical risk efforts supporting a stable design that has been proven in flight test and therefore was assigned Budget Activity Code 07.

<b>(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Design activities continue for software spirals and remaining Group A engineering data release for the H2, H2.5, and H3 configurations.	185.067	119.408	78.902
(U) Engineering Change Orders (ECO), Govt Furnished Property (GFP), Award Fee, and Protest Settlement Costs.	15.465	18.742	12.370
(U) Developmental Test and Evaluation.	9.866	12.645	7.003
(U) Training System development upgrades.	12.377	13.974	17.711
(U) Program office support ( A&AS, TDY, SIF Nodes delivery, training and supplies).	6.957	7.323	8.921
(U) Total Cost	229.732	172.092	124.907

<b>(U) <u>C. Other Program Funding Summary (\$ in Millions)</u></b>										
	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E										
(U) Other APPN										
(U) PE 0401115F, 3010, C-130 AMP, BP1100 (Aircraft Procurement)	28.069	184.073	209.509	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

**(U) D. Acquisition Strategy**  
 The C-130 AMP contract was awarded 30 July 2001 as a Cost-Plus Award Fee contract to develop and install AMP kits for the development aircraft and conduct developmental flight test. A Restructure Engineering Change Proposal (ECP) 1302 was awarded to Boeing 20 August 2003. The ECP rebaselined the program due to AF funding reductions in FYs 03/04 which resulted in delays in System Development and Demonstration (SDD) program. Revisions to the AF training system began in July 2006 under the AMP contract. This effort will modify the various Training Programs, Courses, Weapons Systems Trainers, and Maintenance Trainers to the AMP configuration.  
 The 2007 Nunn-McCurdy certification resulted in the need for a 2nd restructure and rebaseline for the remaining program activities with a contract modification August 2008.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>07 Operational System Development</b>				<b>0401115F C-130 AIRLIFT SQUADRONS</b>					<b>4885 Avionics Modernization Program (AMP)</b>			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
Boeing, Long Beach, CA	CPAF		819.930	203.394	Nov-07	152.124	Nov-08	112.733	Nov-09	Continuing	TBD	
Subtotal Product Development			819.930	203.394		152.124		112.733		Continuing	TBD	0.000
Remarks:	Note: Funds shown here contain System Design & Development, ECO, AMP Training System Upgrades & the Award Fee.											
(U) <u>Support</u>												
Program Support Office	N/A		94.830	16.472		7.323		5.171		Continuing	TBD	
Subtotal Support			94.830	16.472		7.323		5.171		Continuing	TBD	0.000
Remarks:	Award Dates vary throughout the year depending on activity (Protest Settlements, TDY, Training, Internal Contractor Support, and SIF Nodes Delivery)											
(U) <u>Test &amp; Evaluation</u>												
Various			26.410	9.866	Nov-08	12.645	Mar-09	7.003	Nov-09	Continuing	TBD	
Subtotal Test & Evaluation			26.410	9.866		12.645		7.003		Continuing	TBD	0.000
Remarks:												
(U) <u>Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000			0.000	0.000
Remarks:												
(U) Total Cost			941.170	229.732		172.092		124.907		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE  
May 2009

BUDGET ACTIVITY  
07 Operational System Development

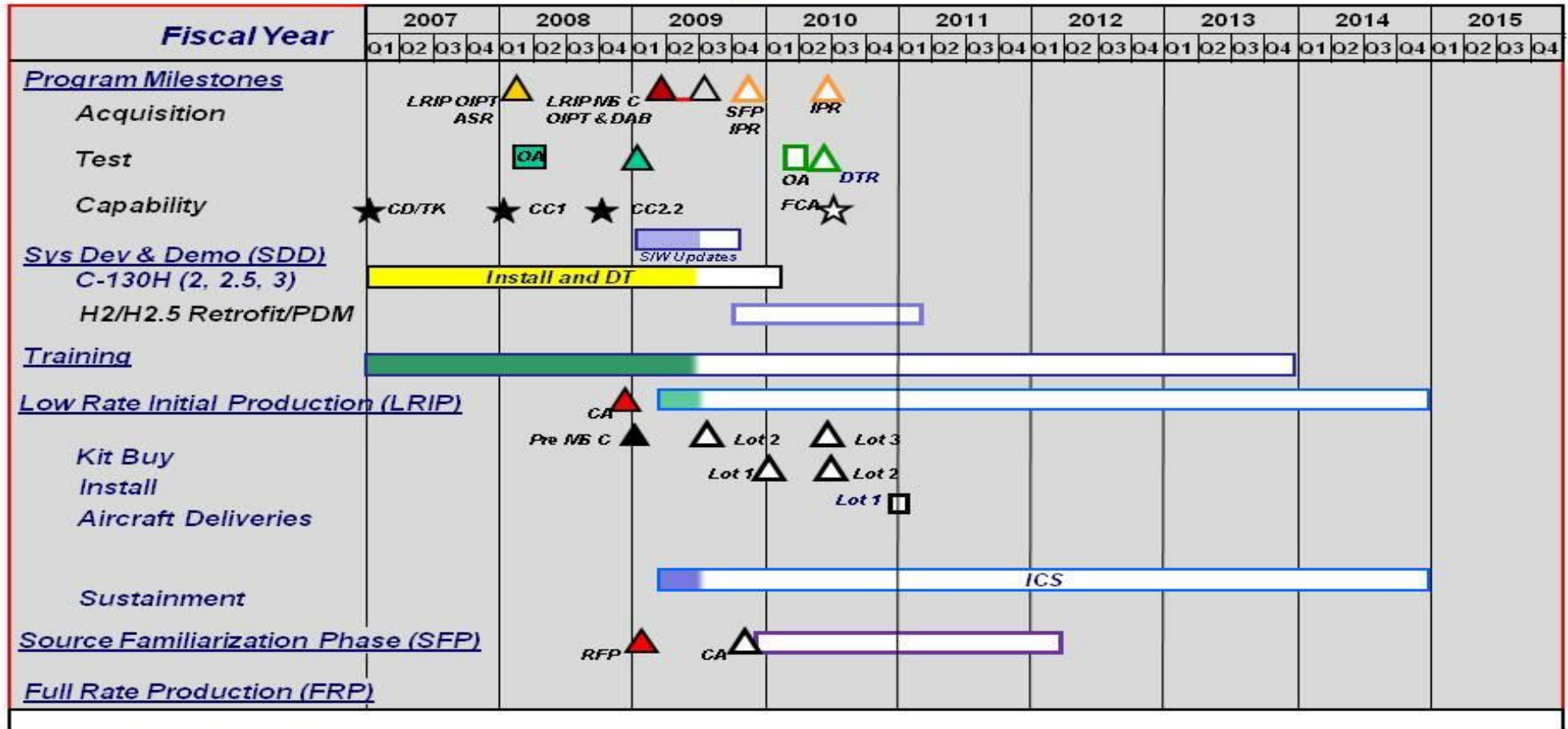
PE NUMBER AND TITLE  
0401115F C-130 AIRLIFT  
SQUADRONS

PROJECT NUMBER AND TITLE  
4885 Avionics Modernization  
Program (AMP)



# C-130 AMP Program Schedule

*Dominant Air Power: Design For Tomorrow... Deliver Today*



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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0401115F C-130 AIRLIFT SQUADRONS</b>	<b>PROJECT NUMBER AND TITLE</b> <b>4885 Avionics Modernization Program (AMP)</b>
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	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) <b>Schedule Profile</b>			
(U) C-130H3 First Flight		2Q	
(U) MS C LRIP Decision		3Q	
(U) Development Flight Test Complete		3Q	
(U) Functional Configuration Audit (FCA)			2Q

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>					PE NUMBER AND TITLE <b>0401115F C-130 AIRLIFT SQUADRONS</b>			PROJECT NUMBER AND TITLE <b>5243 C-130 Initiatives</b>		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5243 C-130 Initiatives	3.577	7.180	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

C-130 Congressional Adds of \$7.4M consist of \$3.2M for Automated Inspection Repair Corrosion and Aircraft Tracking (AIRCAT); \$2M for Electromagnetic In-flight Propeller Balancing System and \$2M for NP-2000 Propellers for ANG.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) NP-2000 Propellers for ANG		1.950	
(U) Propeller De-icing System Metal Fiber Brushes	1.192		
(U) Electromagnetic in-flight Prop Balancing Sys		1.950	
(U) C-130 AIRCAT Condition Based Maintenance (CBM+)	2.385	3.280	
(U) Total Cost	3.577	7.180	0.000

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) None										

**(U) D. Acquisition Strategy**

AIRCAT contract awarded in Sep 08.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>07 Operational System Development</b>				<b>0401115F C-130 AIRLIFT SQUADRONS</b>					<b>5243 C-130 Initiatives</b>			
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
AIRCAT System engineering development	FFP	Warner Robins, GA	2.300	2.385							4.685	
Subtotal Product Development			2.300	2.385		0.000		0.000		0.000	4.685	0.000
Remarks:												
(U) <u>Support</u>												
Prop De-ice Metal Fiber Brushes	FFP	Arlington, VA		1.192							1.192	
Subtotal Support			0.000	1.192		0.000		0.000		0.000	1.192	0.000
Remarks:		Preproduction Kit delivery in FY09										
(U) <u>Test &amp; Evaluation</u>												
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			2.300	3.577		0.000		0.000		0.000	5.877	0.000

**Exhibit R-4, RDT&E Schedule Profile**

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**May 2009**

BUDGET ACTIVITY

**07 Operational System Development**

PE NUMBER AND TITLE

**0401115F C-130 AIRLIFT  
SQUADRONS**

PROJECT NUMBER AND TITLE

**5243 C-130 Initiatives**

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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>May 2009</b>
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BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0401115F C-130 AIRLIFT SQUADRONS</b>	PROJECT NUMBER AND TITLE <b>5243 C-130 Initiatives</b>
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<b>(U) <u>Schedule Profile</u></b>	<u>FY 2008</u>	<u>FY 2009</u>		<u>FY 2010</u>
<b>(U) Prop De-icing System Flight Test</b>	1Q	3Q		

## Exhibit R-2a, RDT&amp;E Project Justification

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BUDGET ACTIVITY <b>07 Operational System Development</b>				PE NUMBER AND TITLE <b>0401115F C-130 AIRLIFT SQUADRONS</b>			PROJECT NUMBER AND TITLE <b>5362 AMP Phase II</b>			
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5362 AMP Phase II	0.000	0.000	76.343	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

The C-130 Avionics Modernization Program (AMP) Phase II consolidates and installs the mandated AF Navigation/Safety modifications, the communications Navigation Surveillance/Air Traffic Management (CNS/ATM) capabilities and the C-130 Broad Area Review requirements on 129 additional aircraft (82 Special Mission AC/EC/LC/MC-130s and 47 Combat Delivery C-130H1s). These aircraft were part of AF's C-130 AMP since its inception in 2001. Therefore, all AMP's core hardware and software were designed from the start to accommodate the unique requirements of these Special Mission aircraft. The funding for these aircraft was postponed until FY10 as a result of AMP's Nunn-McCurdy certification in Jun 2007.

These mandated modifications are incorporated with various other Reliability, Maintainability, and Sustainability (RM&S) upgrades to include: installation of new radars, aircrew displays, dual autopilots, dual flight management systems and HF/UHF/VHF radios/data links. An AMP-equipped aircraft will be able to safely and effectively operate worldwide in today's and tomorrow's airspace. In addition, AMP Phase II will lower the cost of ownership and increase survivability for both the Mobility Air Forces (MAF) and Special Operations Forces (SOF) C-130 fleets.

The fleets consist of seven (7) different mission design series (MDS) aircraft to be modified by the AMP Phase II (C-130H1, LC-130H, EC-130H, MC-130H/W, AC-130H and AC-130U).

Within each MDS, multiple configurations exist among the aircraft that will be modified. Today, different models and cockpit configurations create significant logistics support and aircrew training inefficiencies. Also, these differences greatly complicate aircrew and aircraft scheduling and interoperability at forward operating locations. C-130 AMP Phase II will standardize the cockpit configurations and avionics suites for these variants into a single cockpit configuration by installing the core AMP avionics package with a common cockpit layout, thus eliminating many of these significant logistics, interoperability and training problems. The majority of the C-130 Diminishing Manufacturing Sources (DMS) issues are resolved during System Development and Demonstration (SDD) as a result of the new hardware included in the AMP Phase II design. Additionally, the DMS plan, developed during SDD, will be implemented in the production phases to resolve future issues.

Shown here are RDT&E funds for only C-130 AMP Phase II. Funds represent program office estimates and are awaiting completion of final contract negotiation for further definitization. (Notes: This program is intended to leverage SDD efforts completed under AMP, BPAC 674885, which are separately funded and not shown here. USSOCOM's AC/MC-130H/U/Ws require SOF-unique capabilities integrated with AMP Phase II. Funds for these capabilities will be provided in MFP-11 and are not shown here.)

The original AMP SDD contract was awarded to the Boeing Company on 30 Jul 2001. From FY02-05, a combination of funding and requirements instability, coupled with increases in prime contractor development costs, pushed AMP into reportable cost and schedule breaches. With the completion of an Air Force Service Cost Position in Oct 2006, a major cost deviation was confirmed. In Dec 2006, a Program Deviation Report (PDR) was issued and a critical Nunn-McCurdy breach was

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0401115F C-130 AIRLIFT SQUADRONS

PROJECT NUMBER AND TITLE

5362 AMP Phase II

formalized in Feb 2007. The Nunn-McCurdy process confirmed a total of 388 aircraft (222 Combat Delivery C-130s and 166 Special Mission and C-130H1s) were needed for national security. However, in Jun 2007 USD (AT&L) recertified AMP at a reduced profile of 222 Combat Delivery aircraft to meet funding constraints at the time. Of the remaining 166 aircraft, 37 HC-130N/P aircraft were subsequently selected for replacement with C-130Js, leaving 129 Combat Delivery and Special Mission aircraft to form the basis of the AMP Phase II program.

(U) <b>B. Accomplishments/Planned Program (\$ in Millions)</b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Design Activities for software, design/qualification of Group B hardware (mission computer, etc.) and Group A engineering data release for the C-130H1, MC-130W, AC-130H, and AC-130U.			58.616
(U) Engineering Change Orders (ECO), Govt Furnished Parts and Information (GFP/GFI), and Award Fee.			10.821
(U) Developmental Test and Evaluation (Govt test site and flight test).			
(U) Training system development upgrades.			0.844
(U) Program office support (A&AS, TDY, training, supplies).			6.062
(U) Total Cost	0.000	0.000	76.343

(U) <b>C. Other Program Funding Summary (\$ in Millions)</b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>	
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>		
(U) PE 0401115F, 3010, C-130 AMP Phase II, BP1100 (Aircraft Procurement)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

(U) **D. Acquisition Strategy**  
 C-130 AMP Phase II effort is currently on a contractual stop work with Boeing. The Air Force is working with Boeing for modify this contract. The remaining work integrates capabilities from the AMP project onto each of the aircraft types in AMP Phase II and adds selected SOF-unique capabilities (e.g. terrain following radar), and preserves the current unique capabilities of those aircraft. This program also includes modifications to training and support systems. The contractual actions are divided into two main parts. The first part is an updated preliminary design to provide decision knowledge for the second part, traditional SDD effort. The principal reason for this modification is to make these fleets compliant with the International Civil Aviation Organization's future air traffic control systems (CNS/ATM). This capability is considered a low technical risk from a stable design that has been proven in flight test and therefore was assigned a Budget Activity Code 07.

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**Exhibit R-3, RDT&E Project Cost Analysis**

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**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE				
<b>07 Operational System Development</b>				<b>0401115F C-130 AIRLIFT SQUADRONS</b>				<b>5362 AMP Phase II</b>				
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>	CPIF	Boeing, Long Beach	0.000	0.000		0.000		71.448	Feb-10	Continuing	TBD	TBD
Subtotal Product Development			0.000	0.000		0.000		71.448		Continuing	TBD	TBD
Remarks:	Note: Funds show here contain SDD, ECO, Training System Upgrades and the Award Fee.											
(U) <u>Support</u>												
Program Support Office			0.000	0.000		0.000		4.895		Continuing	TBD	TBD
Subtotal Support			0.000	0.000		0.000		4.895		Continuing	TBD	TBD
Remarks:	Award dates vary throughout the year depending on activity (TDY, Training, Contractor Support)											
(U) <u>Test &amp; Evaluation</u>												
Various			0.000	0.000		0.000				Continuing	TBD	TBD
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		Continuing	TBD	TBD
Remarks:												
(U) <u>Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	TBD
Remarks:												
(U) Total Cost			0.000	0.000		0.000		76.343		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

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May 2009

BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0401115F C-130 AIRLIFT  
SQUADRONS

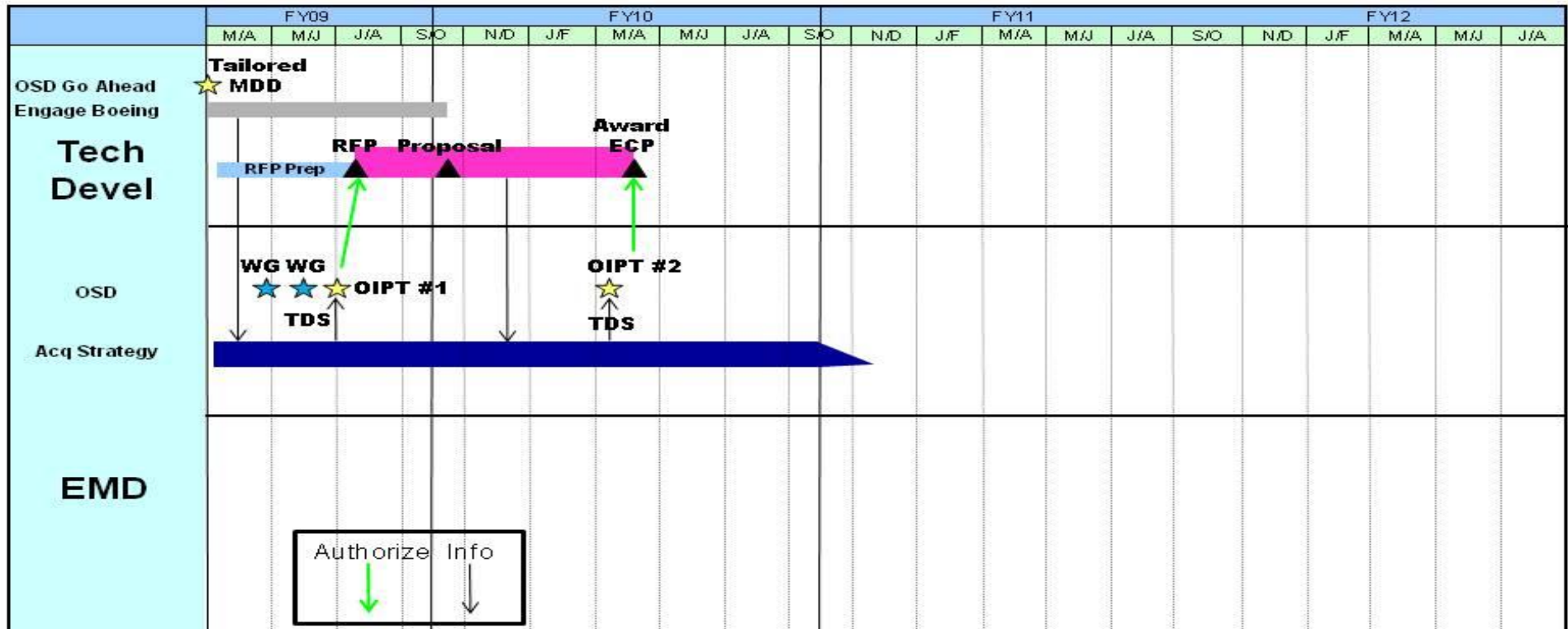
PROJECT NUMBER AND TITLE  
5362 AMP Phase II



# AMP Phase II Acquisition Plan



*Dominant Air Power: Design For Tomorrow... Deliver Today*



ASR = Acquisition Strategy Report, CDR = Critical Design Review, ECP = Engineering Change Proposal, EMD = Engineering & Manufacturing Development, MDD = Material Development Decision, PDR = Preliminary Design Review, RFP = Request for Proposal, TDS = Technical Development Strategy, WG = Working Group

Exhibit R-4a, RDT&E Schedule Detail

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0401115F C-130 AIRLIFT  
SQUADRONS

PROJECT NUMBER AND TITLE

5362 AMP Phase II

(U) Schedule Profile

FY 2008

FY 2009

FY 2010

(U) Contract Award

2Q

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0401119F C-5 Airlift Squadrons</b>
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	173.960	127.118	95.266	0.000	0.000	0.000	0.000	0.000	0.000	2,045.609
4495 Avionics Modernization Program	10.174	4.219	3.933	0.000	0.000	0.000	0.000	0.000	0.000	418.230
4835 Reliability Enhancement & Reengining Program	163.786	122.899	71.671	0.000	0.000	0.000	0.000	0.000	0.000	1,588.200
5353 C-5 Block Upgrade	0.000	0.000	19.662	0.000	0.000	0.000	0.000	0.000	0.000	39.179

**(U) A. Mission Description and Budget Item Justification**

674495: Avionics Modernization Program (AMP): Phase I of an Air Force planned two-phase modernization effort for the C-5 [Phase II is the Reliability Enhancement and Re-engining Program (RERP)]. AMP implements communication, navigation, surveillance/air traffic management (CNS/ATM) [formerly, Global Air Traffic Management (GATM)] and navigation/safety capability and the All Weather Flight Control System (AWFCS). It installs Deputy Secretary of Defense (DepSecDef) directed navigation/safety equipment: Terrain Awareness and Warning System (TAWS) and Traffic Alert and Collision Avoidance System (TCAS), reducing the threat of controlled flight into terrain and mid-air collisions. CNS/ATM capability requirements will be incorporated into the aircraft to meet current and future International Civil Aviation Organization (ICAO)/Federal Aviation Administration (FAA) requirements and to progress towards free flight capability. The AWFCS portion of AMP replaces low reliability line replaceable units (LRUs) in the automatic flight control system and replaces aging, non-supportable mechanical instruments in the engine and flight systems. Connectivity to mobility command and control capabilities will also be incorporated in the AMP design. The TCAS portion was accelerated ahead of the rest of the AMP mod and was completed 31 Oct 02. Two AMP RDT&E test articles were funded in FY99 for installation and flight test in FY02/03/04/05. AMP's first flight occurred in Dec 02. The final software build completed Jun 05, and operational testing completed Jul 06. A portion of avionics capability required for modernization that was not complete at the end of AMP development will be captured and funded in RERP. All other avionics capability will be captured in a separate follow-on block upgrade program. This project is comprised of low technical risk efforts supporting fielded weapons systems and, therefore, was assigned to Budget Activity 7, Operational Systems Development. AMP requirements have been expanded to incorporate updates to the new avionics architecture, to include security enhancements to the Global Positioning System. Equipment DMS issues will be resolved to support continued operations through studies, development, and redesign efforts. Congressional plus-ups provided funding for Inductive Thermography in FY08 (\$1.5M) and FY09 (\$2.4M).

674835: Reliability Enhancement and Re-engining Program (RERP): Phase II of an Air Force (AF) planned two-phase modernization effort for the C-5. It improves aircraft reliability, maintainability, and availability. RERP will enable the C-5 to achieve wartime mission requirements by increasing fleet availability (mission capable rate, departure reliability) while reducing Total Ownership Cost (TOC). This effort centers around replacing TF39 engines with a more reliable, Commercial Off-the-Shelf (COTS) CF6 (F138 military designation) turbofan engine with increased takeoff thrust and stage three noise compliance. These new engines (along with new pylons, wing attach fittings and upgrades, and thrust reversers) increase payload capability and access to Communications, Navigation, Surveillance/Air Traffic Management (CNS/ATM) airspace. The modification also decreases aircraft time to climb, increases engine-out climb gradient for takeoff, improves transportation system throughput, and decreases engine removals. Additionally, numerous other system modifications will be performed (e.g., auxiliary power units, electrical, hydraulics, fuel system, fire suppression system, pressurization/air conditioning system, landing gear, and airframe) to increase fleet availability and reduce TOC. RDT&E funded three test articles for installation and flight test. RERP's Preliminary Design Review (PDR) completed in Jan 03 and the Air Vehicle Critical Design

## Exhibit R-2, RDT&amp;E Budget Item Justification

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**07 Operational System Development**

PE NUMBER AND TITLE

**0401119F C-5 Airlift Squadrons**

Review (CDR) completed in Mar 04. First Flight of the first test article occurred in Jun 06, followed by first flight of second and third test articles in Nov 06 and Mar 07, respectively. The flight test program completed with no significant technical issues, accomplishing 100% of ground and flight test specification points and two Integrated System Evaluations. A portion of avionics capability not complete at the end of AMP development (Phase 1) will be incorporated in RERP or in a follow-on block upgrade program. This project is comprised of low technical risk efforts supporting fielded weapons systems and, therefore, was assigned Budget Activity 7. Increased costs due to development delays, budget adjustments, and production cost increases associated with engines, pylons, reliability enhancement items, and Lockheed Martin labor led to a review of total program requirements. SecAF notified Congress on 27 Sep 07 of critical Nunn-McCurdy (NM) breaches for Average Procurement Unit Cost (APUC) and Program Acquisition Unit Cost (PAUC). An out-of-cycle Selected Acquisition Report (SAR) was submitted to Congress on 14 Nov 07. This restructured program reduced RERP scope to include only 49 Production aircraft (47 C-5Bs and 2 C-5Cs). On March 14, 2008 USD AT&L conducted a successful Milestone C (MS C) Defense Acquisition Board (DAB). USD AT&L signed the Acquisition Program Baseline (APB) reflecting the NM certification and the MS C approval on June 24, 2008. Equipment Diminishing Manufacturing Sources (DMS) issues will be resolved to support continued operations through studies, bridge buys, life of type buys, development and redesign efforts. Note: "Total cost" reflects prior years through FY10 only.

675353: C-5 Block Upgrade: The software (S/W) and hardware (H/W) baselines between the Avionics Modernization Program (AMP) and Reliability Enhancement and Re-engining Program (RERP) have diverged. S/W deficiencies fixed under AMP sustainment (Block Cycle Changes) reappear in the RERP 3.3 S/W release. This increases the workload to both operator and maintenance users. The AMP sustainment build fixed Multifunctional Display Unit (MFDU) updates and Automatic Flight Control System (AFCS) Built in Test (BIT) deficiencies. MFDU updates improve operator awareness and AFCS BIT allows maintenance users to correct deficiencies. At a minimum, changes/improvements incorporated into RERP need to be added to the AMP baseline to keep the S/W baselines from diverging any further. Deficiencies noted in the RERP 3.3 S/W release during OT&E also need to be incorporated in both baselines to continue cost avoidance in future S/W builds. Additionally, the current C-5 AMP system has a total of two Core Processor Module (CPM) cards [one in the Versatile Integrated Avionics (VIA) and one in the Avionics Interface Unit (AIU)]. Originally, AMP was to have 50% spare processing and memory capability. Currently CPM-1 and CPM-2, respectively, have only 22% and 19% throughput capability remaining. This capacity does not allow room for any new capability and contributes to current computer problems. Failure to upgrade the system to 3 CPMs will affect mission capable rates and will inhibit the ability to fix current Deficiency Reports (DRs). A third CPM should be added before RERP full rate production in order to remove multiple H/W fleet configurations between AMP/RERP. Purpose of the initial effort of this program is to provide a measured approach to implement a common baseline for the C-5 fleet in order to allow insertion and integration of newly required capabilities and replacement of future unsupportable equipment. Equipment Diminishing Manufacturing Source (DMS) issues will be resolved to support continued operations through studies, bridge buys, life-of-type buys, development, and redesign efforts. This project is comprised of low technical risk efforts supporting fielded weapons systems and, therefore, was assigned to Budget Activity 7. Note: The C-5 Block Upgrade Program is a New Start program beginning in FY10.



## Exhibit R-2, RDT&amp;E Budget Item Justification

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0401119F C-5 Airlift Squadrons

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	178.990	125.063	28.136
(U) Current PBR/President's Budget	173.960	127.118	95.266
(U) Total Adjustments	-5.030	2.055	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.345	
Congressional Increases		2.400	
Reprogrammings			
SBIR/STTR Transfer	-5.030		

(U) **Significant Program Changes:**

FY10 increase due to a certified restructured RERP to Congress and provided a new Acquisition Decision Memorandum (ADM). This restructured program reduced RERP scope to include only 49 production aircraft (47 C-5Bs and 2 C-5Cs).

FY10 increase - BPAC675353: C-5 Block Upgrade: This is a new start effort needed to manage software/hardware configurations for the C-5 fleet.

## Exhibit R-2a, RDT&amp;E Project Justification

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BUDGET ACTIVITY <b>07 Operational System Development</b>					PE NUMBER AND TITLE <b>0401119F C-5 Airlift Squadrons</b>			PROJECT NUMBER AND TITLE <b>4495 Avionics Modernization Program</b>		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
4495 Avionics Modernization Program	10.174	4.219	3.933	0.000	0.000	0.000	0.000	0.000	0.000	418.230
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

674495: Avionics Modernization Program (AMP): Phase I of an Air Force planned two-phase modernization effort for the C-5 [Phase II is the Reliability Enhancement and Re-engining Program (RERP)]. AMP implements communication, navigation, surveillance/air traffic management (CNS/ATM) [formerly, Global Air Traffic Management (GATM)] and navigation/safety capability and the All Weather Flight Control System (AWFCS). It installs Deputy Secretary of Defense (DepSecDef) directed navigation/safety equipment: Terrain Awareness and Warning System (TAWS) and Traffic Alert and Collision Avoidance System (TCAS), reducing the threat of controlled flight into terrain and mid-air collisions. CNS/ATM capability requirements will be incorporated into the aircraft to meet current and future International Civil Aviation Organization (ICAO)/Federal Aviation Administration (FAA) requirements and to progress towards free flight capability. The AWFCS portion of AMP replaces low reliability line replaceable units (LRUs) in the automatic flight control system and replaces aging, non-supportable mechanical instruments in the engine and flight systems. Connectivity to mobility command and control capabilities will also be incorporated in the AMP design. The TCAS portion was accelerated ahead of the rest of the AMP mod and was completed 31 Oct 02. Two AMP RDT&E test articles were funded in FY99 for installation and flight test in FY02/03/04/05. AMP's first flight occurred in Dec 02. The final software build completed Jun 05, and operational testing completed Jul 06. A portion of avionics capability required for modernization that was not complete at the end of AMP development will be captured and funded in RERP. All other avionics capability will be captured in a separate follow-on block upgrade program. This project is comprised of low technical risk efforts supporting fielded weapons systems and, therefore, was assigned to Budget Activity 7, Operational Systems Development. AMP requirements have been expanded to incorporate updates to the new avionics architecture, to include security enhancements to the Global Positioning System. Equipment DMS issues will be resolved to support continued operations through studies, development, and redesign efforts. Congressional plus-ups provided funding for Inductive Thermography in FY08 (\$1.5M) and FY09 (\$2.4M).

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) System Engineering/Program Management	0.472	0.427	0.000
(U) AMP Avionics Design/Development/Contractor Test	6.583	0.962	1.200
(U) Prototype Fabrication/Install	0.544	0.174	0.400
(U) Mission Support	1.821	2.300	0.733
(U) Government Flight Test Cost	0.754	0.356	1.600
(U) Total Cost	10.174	4.219	3.933

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**Exhibit R-2a, RDT&E Project Justification**

DATE

**May 2009**

<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0401119F C-5 Airlift Squadrons</b>	<b>PROJECT NUMBER AND TITLE</b> <b>4495 Avionics Modernization Program</b>
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**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E										
(U) Other APPN										
(U) Aircraft Procurement, AF, BA-5, C-5 Mods, Avionics Modernization Program, BP-11	84.426	94.901	79.939							724.297
(U) Aircraft Procurement, AF, BA-5, C-5 Mods, Avionics Modernization Program, BP-19	23.584	7.407	4.882							35.873
(U) Aircraft Procurement, AF, BA-5, C-5 Reliability Enhancement and Re-engining Program, BP-11 Advance Procurement	53.000	50.762	108.300							264.594
(U) Aircraft Procurement, AF, BA-5, C-5 Mods, Reliability Enhancement and Re-engining Program, BP-11	147.952	280.116	502.308							939.364
(U) Aircraft Procurement, AF, BA-5, C-5 Mods, Reliability Enhancement and Re-engining Program, BP-19	0.000	0.000	12.376							12.376

**(U) D. Acquisition Strategy**

Avionics Modernization Program: Program acquisition strategy establishes a single integrating contractor (Lockheed Martin Aeronautics Company) to modify and qualify integrated Commercial Off-the-Shelf (COTS) line replaceable units (LRUs) and software to meet C-5 performance and communication, navigation, surveillance/air traffic management (CNS/ATM) requirements; update existing C-5 engineering and technical data; develop interface control specifications based on performance requirements; prototype the new system; and support flight testing. AMP contract awarded to the Lockheed Martin/Honeywell team on 22 January 1999. \$9.7M in FY99 procurement was added in the FY00 PB to accelerate Traffic Alert and Collision Avoidance System (TCAS) installations ahead of the rest of AMP.

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0401119F C-5 Airlift Squadrons

PROJECT NUMBER AND TITLE

4495 Avionics Modernization Program

The AMP modification is planned for the entire C-5 fleet.

UNCLASSIFIED

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>07 Operational System Development</b>				<b>0401119F C-5 Airlift Squadrons</b>					<b>4495 Avionics Modernization Program</b>			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
0	CPAF		352.104	7.127	Jan-09	1.136	Jan-09	1.600			361.967	361.967
Rockwell Collins											0.000	
Subtotal Product Development			352.104	7.127		1.136		1.600		0.000	361.967	361.967
Remarks:	Engineering complete.											
(U) <u>Support</u>												
730 ACSG, Robins AFB, GA			1.492	0.749		0.334		0.733			3.308	3.308
716 AESG, Wright-Patterson AFB, OH			22.448								22.448	22.448
Thermography				1.544		2.393					3.937	3.937
Subtotal Support			23.940	2.293		2.727		0.733		0.000	29.693	29.693
Remarks:	Engineering complete.											
(U) <u>Test &amp; Evaluation</u>												
418 Test Squadron		Edwards AFB	18.793								18.793	18.793
578 WRALC				0.754		0.356		1.600			2.710	2.710
Subtotal Test & Evaluation			18.793	0.754		0.356		1.600		0.000	21.503	21.503
Remarks:												
(U) <u>Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:	Engineering complete.											
(U) Total Cost			394.837	10.174		4.219		3.933		0.000	413.163	413.163

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY  
07 Operational System Development

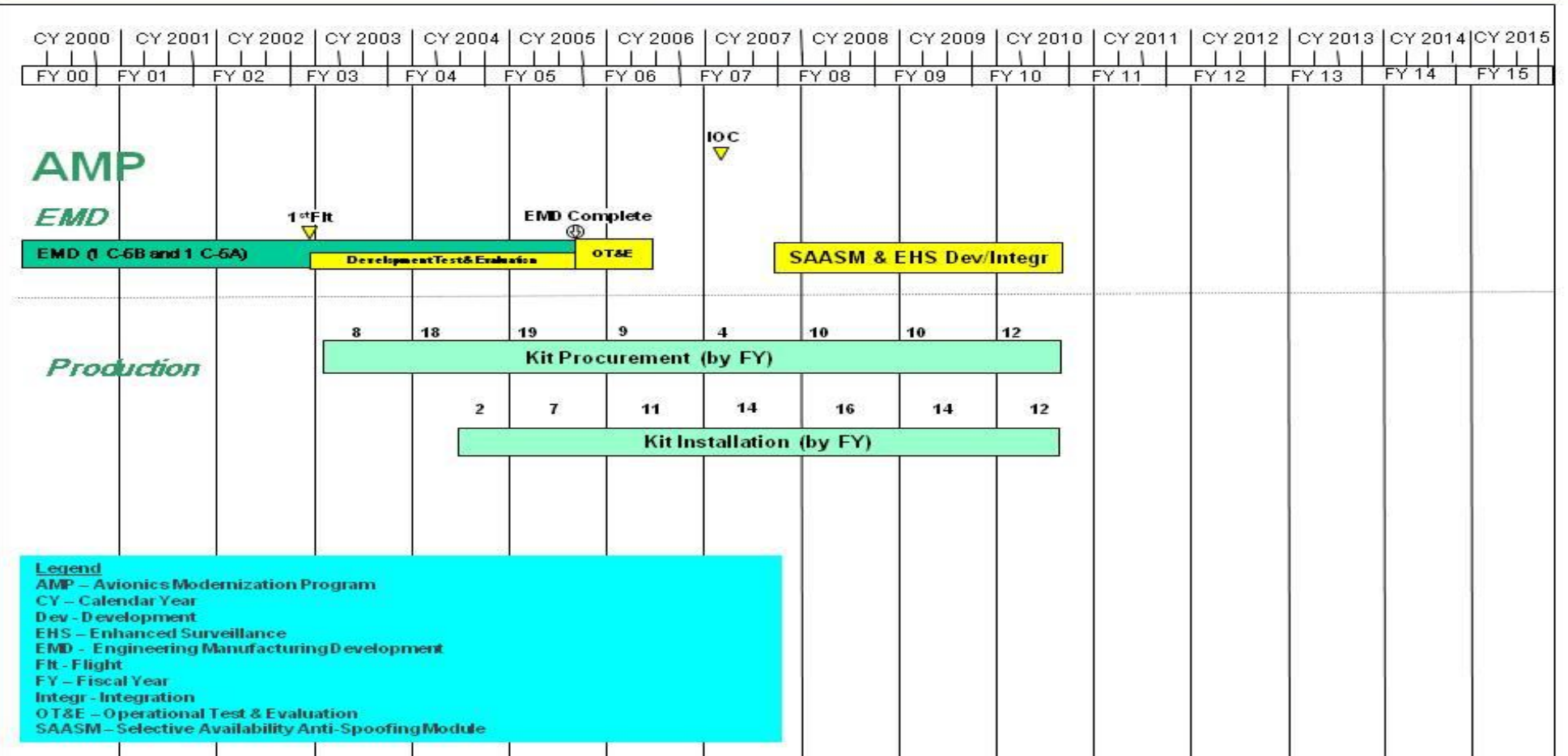
PE NUMBER AND TITLE  
0401119F C-5 Airlift Squadrons

PROJECT NUMBER AND TITLE  
4495 Avionics Modernization Program



**C-5 Summary Schedule  
Avionics Modernization Program (AMP)**

U.S. AIR FORCE



**Legend**  
 AMP - Avionics Modernization Program  
 CY - Calendar Year  
 Dev - Development  
 EHS - Enhanced Surveillance  
 EMD - Engineering Manufacturing Development  
 Flt - Flight  
 FY - Fiscal Year  
 Integr - Integration  
 OT&E - Operational Test & Evaluation  
 SAASM - Selective Availability Anti-Spoofing Module

UNCLASSIFIED

<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>		DATE <b>May 2009</b>
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BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0401119F C-5 Airlift Squadrons</b>	PROJECT NUMBER AND TITLE <b>4495 Avionics Modernization Program</b>
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(U) <u>Schedule Profile</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Aircraft is in production	1-4Q	1-4Q	1-4Q

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

May 2009

BUDGET ACTIVITY		PE NUMBER AND TITLE						PROJECT NUMBER AND TITLE		
07 Operational System Development		0401119F C-5 Airlift Squadrons						4835 Reliability Enhancement & Reengining Program		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
4835 Reliability Enhancement & Reengining Program	163.786	122.899	71.671	0.000	0.000	0.000	0.000	0.000	0.000	1,588.200
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) **A. Mission Description and Budget Item Justification**

674835: Reliability Enhancement and Re-engining Program (RERP): Phase II of an Air Force (AF) planned two-phase modernization effort for the C-5. It improves aircraft reliability, maintainability, and availability. RERP will enable the C-5 to achieve wartime mission requirements by increasing fleet availability (mission capable rate, departure reliability) while reducing Total Ownership Cost (TOC). This effort centers around replacing TF39 engines with a more reliable, Commercial Off-the-Shelf (COTS) CF6 (F138 military designation) turbofan engine with increased takeoff thrust and stage three noise compliance. These new engines (along with new pylons, wing attach fittings and upgrades, and thrust reversers) increase payload capability and access to Communications, Navigation, Surveillance/Air Traffic Management (CNS/ATM) airspace. The modification also decreases aircraft time to climb, increases engine-out climb gradient for takeoff, improves transportation system throughput, and decreases engine removals. Additionally, numerous other system modifications will be performed (e.g., auxiliary power units, electrical, hydraulics, fuel system, fire suppression system, pressurization/air conditioning system, landing gear, and airframe) to increase fleet availability and reduce TOC. RDT&E funded three test articles for installation and flight test. RERP's Preliminary Design Review (PDR) completed in Jan 03 and the Air Vehicle Critical Design Review (CDR) completed in Mar 04. First Flight of the first test article occurred in Jun 06, followed by first flight of second and third test articles in Nov 06 and Mar 07, respectively. The flight test program completed with no significant technical issues, accomplishing 100% of ground and flight test specification points and two Integrated System Evaluations. A portion of avionics capability not complete at the end of AMP development (Phase 1) will be incorporated in RERP or in a follow-on block upgrade program. This project is comprised of low technical risk efforts supporting fielded weapons systems and, therefore, was assigned Budget Activity 7. Increased costs due to development delays, budget adjustments, and production cost increases associated with engines, pylons, reliability enhancement items, and Lockheed Martin labor led to a review of total program requirements. SecAF notified Congress on 27 Sep 07 of critical Nunn-McCurdy (NM) breaches for Average Procurement Unit Cost (APUC) and Program Acquisition Unit Cost (PAUC). An out-of-cycle Selected Acquisition Report (SAR) was submitted to Congress on 14 Nov 07. On 14 Feb 08, USD (AT&L) certified a restructured RERP to Congress and provided a new Acquisition Decision Memorandum (ADM). This restructured program reduced RERP scope to include only 49 Production aircraft (47 C-5Bs and 2 C-5Cs). These adjustments are reflected in the FY10 President's Budget (PB). On March 14, 2008 USD AT&L conducted a successful Milestone C (MS C) Defense Acquisition Board (DAB). USD AT&L signed the Acquisition Program Baseline (APB) reflecting the NM certification and the MS C approval on June 24, 2008. Equipment Diminishing Manufacturing Sources (DMS) issues will be resolved to support continued operations through studies, bridge buys, life of type buys, development and redesign efforts. NOTE: "Total cost" reflects prior years through FY10 only.



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<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>May 2009</b>
--	-------------------------

<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0401119F C-5 Airlift Squadrons</b>	<b>PROJECT NUMBER AND TITLE</b> <b>4835 Reliability Enhancement &amp; Reengining Program</b>
--	---	---

<b>(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Systems Engineering/Program Management	14.390	9.484	15.855
(U) RERP Design/Development/Contractor Test	112.120	80.461	22.521
(U) Prototype Fabrication/Install	0.000	0.000	0.000
(U) Mission Support	10.584	4.018	0.000
(U) Government Test Support	22.692	7.016	3.580
(U) Aircrew & Maintenance Trainer	4.000	21.920	29.715
(U) Total Cost	163.786	122.899	71.671

<b>(U) <u>C. Other Program Funding Summary (\$ in Millions)</u></b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E										
(U) Other APPN										
(U) Aircraft Procurement, AF, BA-5, C-5 Reliability Enhancement and Re-engining Program, BP-11 Advance Procurement	53.000	50.762	108.300							264.594
(U) Aircraft Procurement, AF, BA-5, C-5 Mods, Reliability Enhancement and Re-engining Program, BP-11	147.952	280.116	502.308							939.364
(U) Aircraft Procurement, AF, BA-5, C-5 Mods, Avionics Modernization Program, BP-11	84.426	94.901	79.939							724.297
(U) Aircraft Procurement, AF, BA-5, C-5 Mods, Avionics Modernization Program, BP-19	23.584	7.407	4.882							35.873
(U) Aircraft Procurement, AF, BA-5, C-5 Mods, Reliability	0.000	0.000	12.376							12.376

R-1 Line Item No. 219

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Project 4835

Exhibit R-2a (PE 0401119F)

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

May 2009

BUDGET ACTIVITY

**07 Operational System Development**

PE NUMBER AND TITLE

**0401119F C-5 Airlift Squadrons**

PROJECT NUMBER AND TITLE

**4835 Reliability Enhancement &  
Reengining Program****(U) C. Other Program Funding Summary (\$ in Millions)**

Enhancement and  
Re-engining Program, BP-19

**(U) D. Acquisition Strategy**

Reliability Enhancement and Reengining Program (RERP): The approved FY02 acquisition strategy and the updated FY06 acquisition strategy called for the modification of the entire C-5 aircraft fleet starting with the B-models first. System Development & Demonstration (SDD) includes 1 C-5A and 2 C-5Bs. The program acquisition strategy is to consider every opportunity to use commercially available components and processes to modernize C-5 products and processes to meet or exceed required system performance and support, so as to renew the weapon system until 2040. Lockheed Martin has been selected as the prime contractor through a sole source arrangement. Lockheed has selected General Electric (Powerplant), Goodrich (Pylon), and Honeywell (Avionics) as the major subcontractors.

UNCLASSIFIED

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE  
**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>07 Operational System Development</b>				<b>0401119F C-5 Airlift Squadrons</b>					<b>4835 Reliability Enhancement &amp; Reengining Program</b>			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2008 Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date	Cost to Complete	Total Cost	Target Value of Contract
(U) <u>Product Development</u>												
Lockheed Martin Aeronautics Co (Pre-EMD)	FFP		46.738							0.000	46.738	46.738
Lockheed Martin Aeronautics Co (SDD)	CPAF		1,092.166	126.511	Oct-07	87.945	Dec-08	25.733	Oct-09	Continuing	TBD	TBD
Lockheed Martin Aeronautics Co (ICS)	Multiple					2.000	Jan-09	12.643	Jan-10	Continuing	TBD	TBD
											0.000	
Subtotal Product Development			1,138.903	126.511		89.945		38.376		Continuing	TBD	TBD
Remarks:	Costs shown on Interim Contract Support (ICS) line were previously included in SDD line. Due to a change in contracting strategy post-FY09 PB submission, these costs were moved from the SDD line to the ICS line. These costs represent the costs associated with post-SDD DMS resolution and Deficiency Report (DR) resolution during QOT&E to be executed using the ICS contract vehicle.											
(U) <u>Support</u>												
730.ACSG, Robins AFB, GA			22.013	4.730		2.465				0.000	29.208	29.208
716 AESG, Wright-Patterson AFB, OH			36.690	5.854		1.553				0.000	44.097	44.097
N/A											0.000	
Subtotal Support			58.703	10.584		4.018		0.000		0.000	73.305	73.305
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
418 Test Squadron (Edwards AFB)			32.237	22.692		7.016		3.580			65.525	65.525
N/A											0.000	
Subtotal Test & Evaluation			32.237	22.692		7.016		3.580		0.000	65.525	65.525
Remarks:												
(U) <u>Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Aircrew &amp; Maintenance Trainer</u>												
Subtotal Aircrew & Maintenance Trainer			0.000	4.000		21.920		29.715		Continuing	TBD	TBD
Remarks:												
(U) Subtotal			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			1,229.843	163.786		122.899		71.671		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

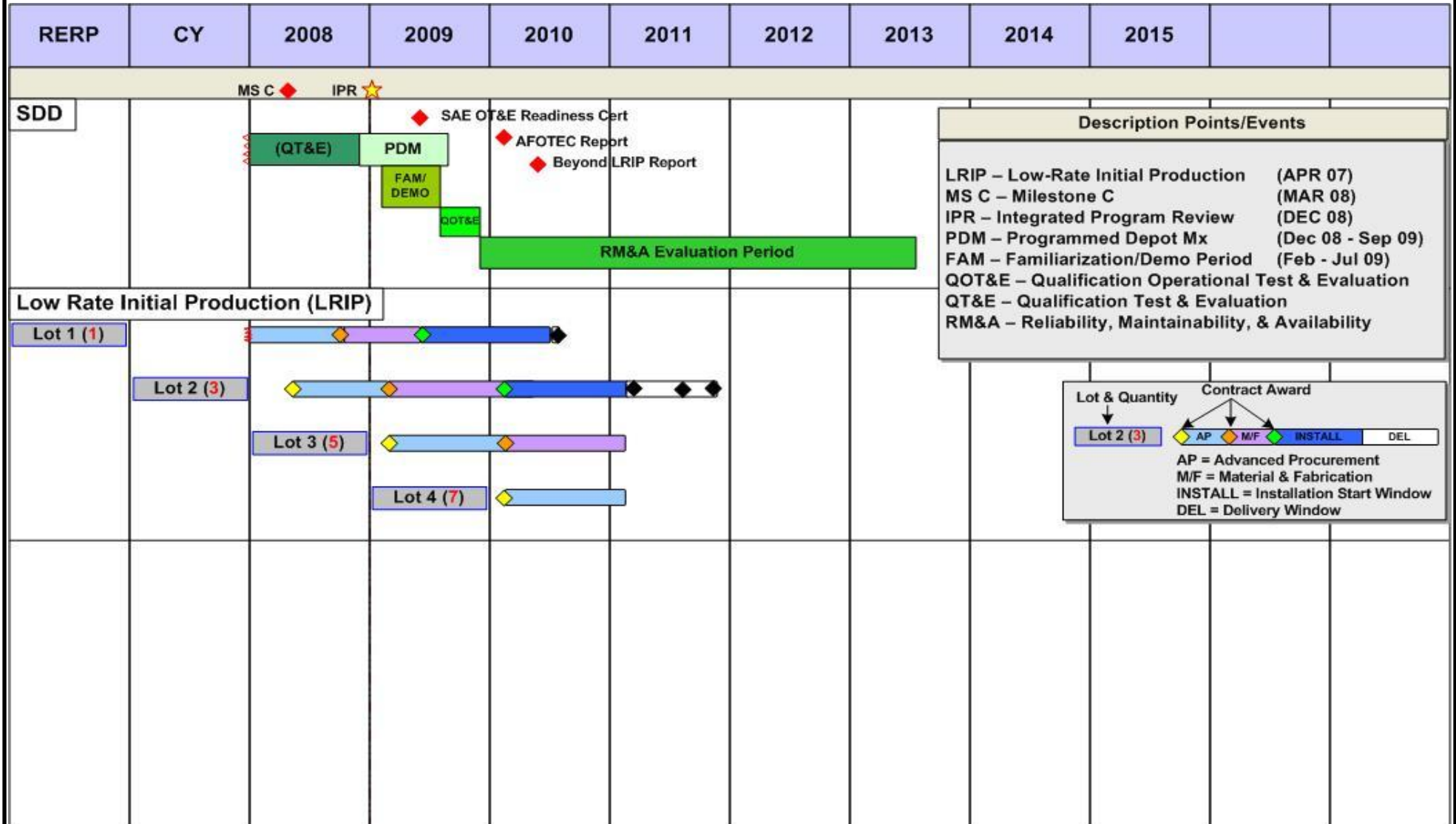
DATE

May 2009

BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0401119F C-5 Airlift Squadrons

PROJECT NUMBER AND TITLE  
4835 Reliability Enhancement & Reengining Program



R-1 Line Item No. 219

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Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0401119F C-5 Airlift Squadrons

PROJECT NUMBER AND TITLE

4835 Reliability Enhancement & Reengining Program

(U) Schedule Profile

FY 2008

FY 2009

FY 2010

(U) Milestone C

2Q

(U) Integrated program Review (IPR)

2Q

(U) Complete Qualification Operational Test and Evaluation (QOT&E) (AFOTEC Report Complete)

2Q

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>					PE NUMBER AND TITLE <b>0401119F C-5 Airlift Squadrons</b>			PROJECT NUMBER AND TITLE <b>5353 C-5 Block Upgrade</b>		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5353 C-5 Block Upgrade	0.000	0.000	19.662	0.000	0.000	0.000	0.000	0.000	0.000	39.179
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

675353: C-5 Block Upgrade: The software (S/W) and hardware (H/W) baselines between the Avionics Modernization Program (AMP) and Reliability Enhancement and Re-engining Program (RERP) have diverged. S/W deficiencies fixed under AMP sustainment (Block Cycle Changes) reappear in the RERP 3.3 S/W release. This increases the workload to both operator and maintenance users. The AMP sustainment build fixed Multifunctional Display Unit (MFDU) updates and Automatic Flight Control System (AFCS) Built in Test (BIT) deficiencies. MFDU updates improve operator awareness and AFCS BIT allows maintenance users to correct deficiencies. At a minimum, changes/improvements incorporated into RERP need to be added to the AMP baseline to keep the S/W baselines from diverging any further. Deficiencies noted in the RERP 3.3 S/W release during OT&E also need to be incorporated in both baselines to continue cost avoidance in future S/W builds. Additionally, the current C-5 AMP system has a total of two Core Processor Module (CPM) cards [one in the Versatile Integrated Avionics (VIA) and one in the Avionics Interface Unit (AIU)]. Originally, AMP was to have 50% spare processing and memory capability. Currently CPM-1 and CPM-2, respectively, have only 22% and 19% throughput capability remaining. This capacity does not allow room for any new capability and contributes to current computer problems. Failure to upgrade the system to 3 CPMs will affect mission capable rates and will inhibit the ability to fix current Deficiency Reports (DRs). A third CPM should be added before RERP full rate production in order to remove multiple H/W fleet configurations between AMP/RERP. Purpose of the initial effort of this program is to provide a measured approach to implement a common baseline for the C-5 fleet in order to allow insertion and integration of newly required capabilities and replacement of future unsupportable equipment. Equipment Diminishing Manufacturing Source (DMS) issues will be resolved to support continued operations through studies, bridge buys, life-of-type buys, development, and redesign efforts. This project is comprised of low technical risk efforts supporting fielded weapons systems, and, therefore, was assigned to Budget Activity 7.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	FY 2008	FY 2009	FY 2010
(U) System Engineering/Program Management			1.420
(U) Block Upgrade Design/Development/Contractor Test			8.606
(U) Prototype Fabrication/Install			0.546
(U) Mission Support			2.335
(U) Government Test Support			1.012
(U) Aircrew & Maintenance Trainers			1.097
(U) OGCs			4.646
(U) Total Cost	0.000	0.000	19.662

Exhibit R-2a, RDT&E Project Justification

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0401119F C-5 Airlift Squadrons

PROJECT NUMBER AND TITLE

5353 C-5 Block Upgrade

(U) **C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	

(U)

(U) **D. Acquisition Strategy**

C-5 Block Upgrade: Program acquisition strategy establishes a single integrating contractor (Lockheed Martin) to modify and qualify an integrated software/hardware system to support all configurations of the C-5 fleet. Updates include software/hardware to meet C-5 performance; Communication, Navigation, Surveillance/Air Traffic Management (CNS/ATM) requirements; RERP software/hardware requirements; LAIRCM, and other growth in capability that may occur in the future. Random incorporation of capabilities denies optimal user capabilities in time of need and increases overall cost. "Block Upgrade 01" is the start of a measured approach in implementing a more common baseline to allow insertion and integration of newly acquired/required capabilities and replacement of future unsupportable equipment due to obsolescence or Diminishing Manufacturing Source (DMS) issues.

UNCLASSIFIED

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>07 Operational System Development</b>				<b>0401119F C-5 Airlift Squadrons</b>					<b>5353 C-5 Block Upgrade</b>			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> Lockheed Martin Aeronautics Co Subtotal Product Development Remarks:	CPAF		0.000	0.000		0.000		11.668 11.668		0.000	11.668 11.668	0.000
(U) <u>Support</u> 730 ACSG, Robins AFB, GA Subtotal Support Remarks:			0.000	0.000		0.000		2.335 2.335		0.000	2.335 2.335	0.000
(U) <u>Test &amp; Evaluation</u> 418 Test Squadron Subtotal Test & Evaluation Remarks:			0.000	0.000		0.000		1.012 1.012		0.000	1.012 1.012	0.000
(U) <u>Management</u> Subtotal Management Remarks:			0.000	0.000		0.000		4.647 4.647		0.000	4.647 4.647	0.000
(U) Total Cost			0.000	0.000		0.000		19.662		0.000	19.662	0.000



Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY  
07 Operational System Development

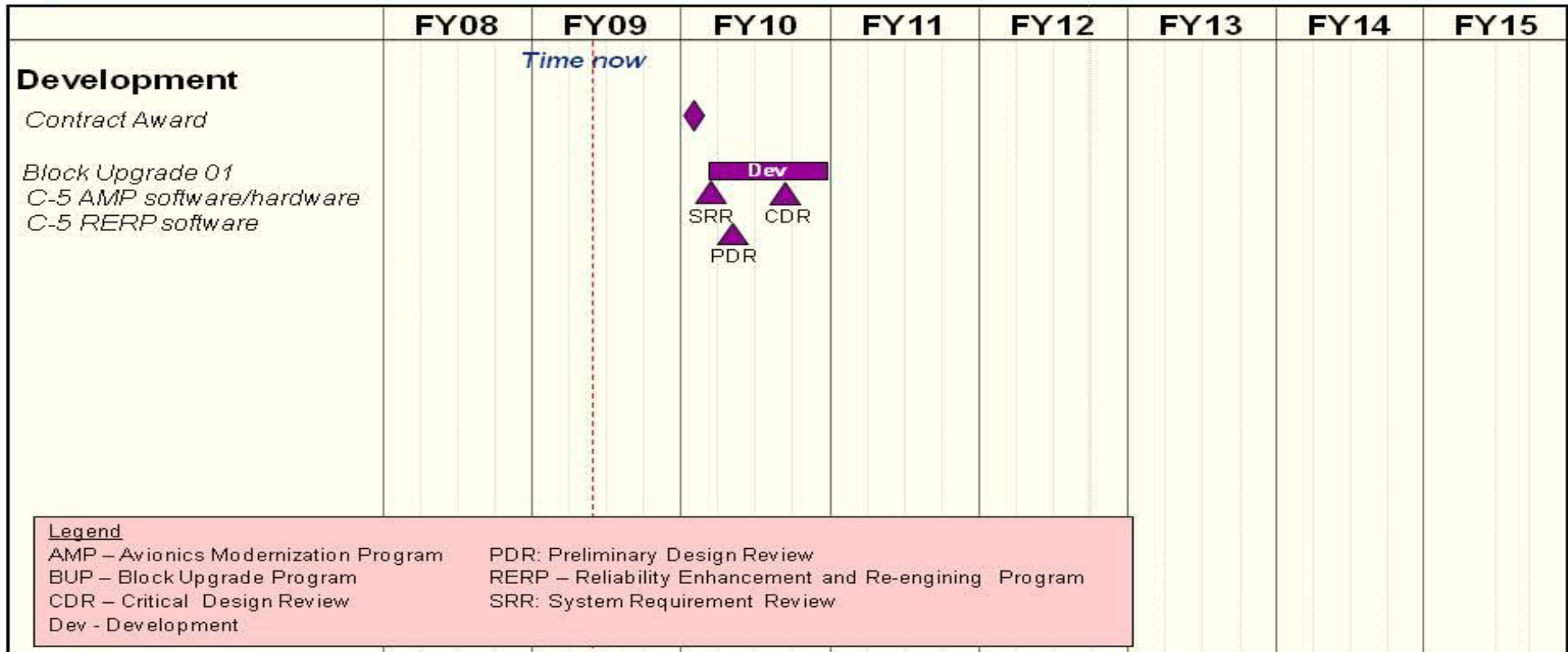
PE NUMBER AND TITLE  
0401119F C-5 Airlift Squadrons

PROJECT NUMBER AND TITLE  
5353 C-5 Block Upgrade



U.S. AIR FORCE

# C-5 BUP Schedule



- |   |   |  |
|---|---|--|
| <span style="display:inline-block; width:15px; height:10px; background-color:blue; border:1px solid black;"></span> Concept activities      | <span style="display:inline-block; width:15px; height:10px; background-color:purple; border:1px solid black;"></span> Design / development    | <span style="display:inline-block; width:15px; height:10px; background-color:yellow; border:1px solid black;"></span> Integration / test |
| <span style="display:inline-block; width:15px; height:10px; background-color:orange; border:1px solid black;"></span> Production / fielding | <span style="display:inline-block; width:15px; height:10px; background-color:green; border:1px solid black;"></span> Operations / sustainment | △◇ Key events  |

Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0401119F C-5 Airlift Squadrons

PROJECT NUMBER AND TITLE

5353 C-5 Block Upgrade

(U) Schedule Profile

FY 2008

FY 2009

FY 2010

(U) System Development and Demonstration

1-4Q

(U) Production

3Q

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0401130F C-17 Aircraft</b>
--	---

Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	166.217	235.407	161.855	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
2569 C-17 Aircraft	166.217	235.407	161.855	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

In FY10, 672569, C-17 Aircraft development includes new start efforts. FY02 and later funds for LAIRCM were transferred to PE 41134F.

**(U) A. Mission Description and Budget Item Justification**

The C-17 can perform the entire spectrum of airlift missions and is specifically designed to operate effectively and efficiently in both strategic and theater environments. Airlift provides essential flexibility when responding to contingencies on short notice anywhere in the world. It is a major element of America's National Military Strategy and constitutes the most responsive means of meeting U.S. mobility requirements. Specific tasks associated with the airlift mission include deployment, employment (airland and airdrop), sustaining support, retrograde, and combat redeployment. Not only can the C-17 deliver outsize cargo to austere tactical environments, but it also reduces ground time during airland operations. The C-17 will perform the airlift mission well into this century. RDT&E efforts support aircraft performance improvements. In addition, funding may be used to develop solutions to emergency obsolescence issues that impact the mission capability or continued support of the C-17 weapon system.

This program is under Budget Activity 7, Operational System Development, since the program has completed Milestone III but is continuing to increase the operational capability of the C-17 through programmed modifications.

**(U) B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	180.581	236.047	216.032
(U) Current PBR/President's Budget	166.217	235.407	161.855
(U) Total Adjustments	-14.364	-0.640	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.640	
Congressional Increases			
Reprogrammings	-10.000		
SBIR/STTR Transfer	-4.364		

**(U) Significant Program Changes:**

FY08 \$10M reprogrammed to the TDL program in support of TDL integration efforts on the A-10 and F-15 aircraft. Funds were available because of late-arriving authority to start replacement heads-up display (RHUD) development, T-1 engine overhaul was deferred, and minor schedule slips to several smaller efforts. FY10 reduction due to higher Air Force priorities.

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>				PE NUMBER AND TITLE <b>0401130F C-17 Aircraft</b>				PROJECT NUMBER AND TITLE <b>2569 C-17 Aircraft</b>		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
2569 C-17 Aircraft	166.217	235.407	161.855	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

In FY10, 672569, C-17 Aircraft development includes new start efforts.

**(U) A. Mission Description and Budget Item Justification**

The C-17 can perform the entire spectrum of airlift missions and is specifically designed to operate effectively and efficiently in both strategic and theater environments. Airlift provides essential flexibility when responding to contingencies on short notice anywhere in the world. It is a major element of America's National Military Strategy and constitutes the most responsive means of meeting U.S. mobility requirements. Specific tasks associated with the airlift mission include deployment, employment (airland and airdrop), sustaining support, retrograde, and combat redeployment. Not only can the C-17 deliver outsize cargo to austere tactical environments, but it also reduces ground time during airland operations. The C-17 will perform the airlift mission well into this century. RDT&E efforts support aircraft performance improvements. In addition, funding may be used to develop solutions to emergency obsolescence issues that impact the mission capability or continued support of the C-17 weapon system.

This program is under Budget Activity 7, Operational System Development, since the program has completed Milestone III but is continuing to increase the operational capability of the C-17 through programmed modifications.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Performance Improvement Development & Testing	89.263	143.733	86.925
(U) Systems Engineering/Program Management	45.273	51.569	39.430
(U) Producibility Enhancement/Performance Improvement (PE/PI) Contractor Flight Test	22.648	26.955	23.500
(U) Producibility Enhancement/Performance Improvement (PE/PI) Government Flight Test	9.033	13.150	12.000
(U) Total Cost	166.217	235.407	161.855

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2008</u> <u>Actual</u>	<u>FY 2009</u> <u>Estimate</u>	<u>FY 2010</u> <u>Estimate</u>	<u>FY 2011</u> <u>Estimate</u>	<u>FY 2012</u> <u>Estimate</u>	<u>FY 2013</u> <u>Estimate</u>	<u>FY 2014</u> <u>Estimate</u>	<u>FY 2015</u> <u>Estimate</u>	<u>Cost to</u> <u>Complete</u>	<u>Total Cost</u>
(U) APAF, MYP, BA02, PE0401130F	3565.639	297.966	88.510						0.000	3,952.115
(U) APAF, A/C Mods, BA05, PE0401130F/PE0401134F/PE 0411897F	261.151	332.417	469.731						0.000	1,063.299
(U) MilCon, Facilities, PE0401130F	44.071	12.000	0.000						0.000	56.071

The A/C mods funding includes the LAIRCM PE since those funds are included in the C-17 11C17A BPAC (P-1 line)

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0401130F C-17 Aircraft

PROJECT NUMBER AND TITLE

2569 C-17 Aircraft

(U) **D. Acquisition Strategy**

The C-17 Acquisition Strategy is based on several separate contracts to support the entire scope of the C-17 weapon system. These contracts are: 1) IDIQ contracts for the procurement of C-17s and engines beyond 180, including 10 aircraft included in the FY07 Defense Appropriations Act, 15 aircraft included in the FY08 GWOT supplemental appropriation, and foreign orders that may materialize; 2) a Producibility Enhancement and Performance Improvement (PE/PI) contract to develop cost reduction changes, capability enhancements, and design fixes to service-revealed problems - (RDT&E, APAF); 3) a Globemaster III Sustainment Partnership (field support) contract to support the current and future fielded aircraft - (O&M, TWCF); 4) an engine contract for Government Furnished Equipment (GFE) engines - (APAF); 5) a set of aircrew simulator and training contracts: one for aircrew simulators and one for training & concurrency upgrades; and 6) a maintenance training device contract for devices & concurrency upgrades - (APAF).

Two C-17 Defense Acquisition Board (DAB) decisions, contained in the 3 Nov 95 and 1 Feb 96 USD(A&T) Acquisition Decision Memoranda (ADM), directed the Air Force to proceed with a 120-aircraft production program. The Air Force proceeded with procuring 40 aircraft followed by an 80-aircraft MYP program (along with engines to support them). Sixty additional C-17s were programmed at the end of the 80-aircraft MYP to meet requirements not included in the 120 aircraft program. The FY07 Defense Appropriations Act provided funding for 10 aircraft to bring the total fleet number to 190 aircraft. Most recently, the FY08 GWOT supplement included funding for 15 additional aircraft.

UNCLASSIFIED

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>07 Operational System Development</b>				<b>0401130F C-17 Aircraft</b>					<b>2569 C-17 Aircraft</b>			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
Boeing	C,FPI/FP,C PIF/AF		6,823.032	147.238	Oct-07	212.379	Oct-08	140.264	Oct-09		7,322.913	
Subtotal Product Development			6,823.032	147.238		212.379		140.264		0.000	7,322.913	0.000
Remarks:												
(U) <u>Support</u>												
Mission Support OGC	PO		98.551	9.946	Oct-07	9.878	Oct-08	9.591	Oct-09		127.966	
Subtotal Support			98.551	9.946		9.878		9.591		0.000	127.966	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
Combined Test Force	PO		354.751	8.000	Jan-08	13.000	Dec-08	12.000	Oct-09		387.751	
JPADS	PO		4.350								4.350	
SPRO (Army funds for testing)	PO		10.146	0.808	Feb-08	0.150	Jan-09			0.000	11.104	
AFRL	PO		0.040	0.225							0.265	
Subtotal Test & Evaluation			369.287	9.033		13.150		12.000		0.000	403.470	0.000
Remarks:												
(U) <u>Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			7,290.870	166.217		235.407		161.855		0.000	7,854.349	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0401130F C-17 Aircraft

PROJECT NUMBER AND TITLE  
2569 C-17 Aircraft

# C-17 Program Schedule

As you can see from this chart, the C-17 is a fairly mature program. We've delivered 185 USAF jets, 6 UK, 4 AUS and 4 Canada aircraft. There are also 2 SAC aircraft planned (+1 USAF A/C).

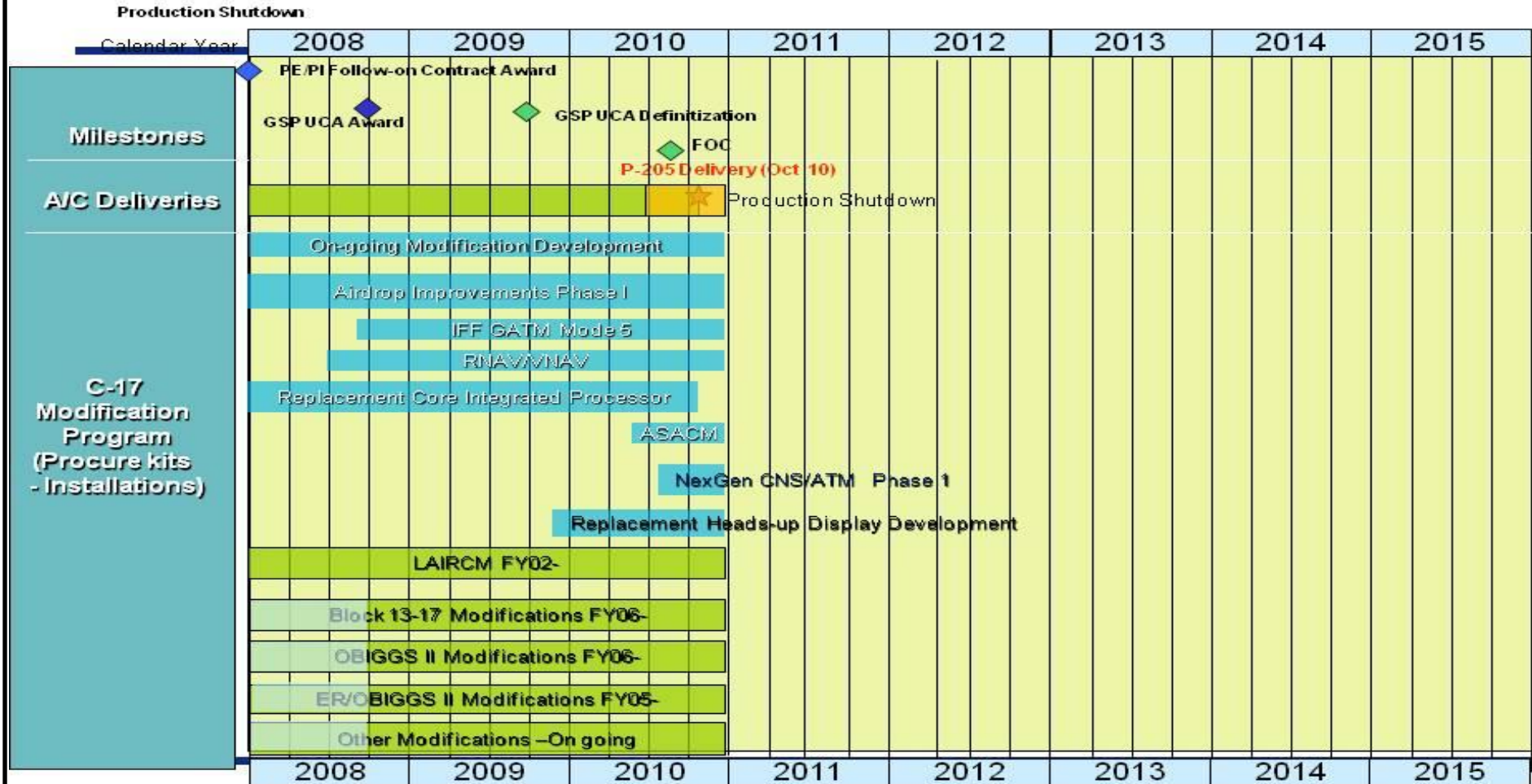


Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0401130F C-17 Aircraft</b>	PROJECT NUMBER AND TITLE <b>2569 C-17 Aircraft</b>
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(U) <u>Schedule Profile</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Incremental Funding of Ongoing Performance Improvement Projects (Boeing)	1-3Q	1-3Q	1-3Q
(U) Adv Situational Awareness & Countermeasures (ASACM)		4Q	1Q
(U) Replacement HUD		4Q	1Q
(U) Next Gen CNS/ATM			3Q
(U) IFF CNS/ATM Mode 5	4Q	1Q	1Q
(U) ELT Frequency Change	4Q	1Q	1Q
(U) Rnav/Vnav & Baro Vnav Capability	3Q	1Q	1Q
(U) Air Force Flight Test Center	2Q	1Q	1Q



**UNCLASSIFIED**

PE NUMBER: 0401132F  
 PE TITLE: C-130J PROGRAM

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0401132F C-130J PROGRAM</b>
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	62.106	27.280	30.019	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5061 C-130J	62.106	27.280	30.019	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

**(U) A. Mission Description and Budget Item Justification**

The C-130J is a medium-sized transport aircraft capable of performing a variety of combat delivery (tactical airlift) operations across a broad range of mission environments. The C-130J aircraft, with its extended (by 15 feet) fuselage, provides additional cargo carrying capacity for the USAF combat delivery mission compared with legacy C-130E/H and the C-130J (short). Special mission variants of the C-130J conduct airborne psychological operations (EC-130J), weather reconnaissance (WC-130J), search and rescue (HC-130J), and special operations (MC-130J). All aircraft variants must be capable of worldwide operations.

FY10 C-130J program RDT&E funding provides for:

- 1.) Participation in the International Co-operative Systems and Software Upgrade Requirements Management (COSSURM). COSSURM participants include the United Kingdom, Australia, Italy, Denmark, Canada, Norway, and the United States. COSSURM provides a mechanism to jointly identify, collect, define, analyze, and price requirements. By combining requirements and resources under COSSURM, each participating country will save in aircraft upgrade costs.
- 2.) Completion of Block 7.0 Upgrades, testing, and trial kit installation(s). Block 7.0 is the third phase of a four-block upgrade initiative which primarily addresses mandated Communication, Navigation, and Surveillance/Air Traffic Management (CNS/ATM) requirements. Block 7.0 is the first Block Upgrade initiative that is a true International partnership, as the development costs are being shared by each participating nation. Block 7.0 requirements include:
  - a.) Communication, Navigation & Identification (CNI) upgrades
  - b.) Dual Multi-Mode Receivers (MMR) with TSO C-129A Civil Global Positioning System (GPS)
  - c.) CNI Special Processor upgrade
  - d.) Tactical Datalink (TDL)
  - e.) Mission Computer (MC) upgrades

Block 7.0 (as well as all future Block Upgrades) will be integrated into the training systems integration lab prior to incorporation into the fielded trainers.
- 3.) Start of Block 8.0 Upgrades. Block 8.0 is the last phase of three block upgrades which will complete all known mandated Communication, Navigation, and Surveillance/Air Traffic Management (CNS/ATM) requirements. Block 8.0 will again be an International partnership with costs being shared by each participating nation. Block 8.0 requirements include:
  - a.) TEMPEST Compliance
  - b.) IFF transponder Mode-5
  - c.) Data-link (line of sight and beyond line of sight)
  - d.) ADS-A/B

Exhibit R-2, RDT&E Budget Item Justification

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0401132F C-130J PROGRAM

e.) Mission Computer (MC) upgrades

4.) Other AMC approved initiatives. AMC has prioritized requirements that do not fall within the International Block Upgrade program, which primarily address deficiencies, system improvements, and diminishing manufacturing sources (DMS). This includes Navigation Safety upgrades, Joint Precision Airdrop System, and Large Aircraft Infrared Counter Measures (LAIRCM), among other priorities.

This effort is assigned to Budget Activity 7, as it supports an operational system.

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	74.223	52.354	42.606
(U) Current PBR/President's Budget	62.106	27.280	30.019
(U) Total Adjustments	-12.117	-25.074	
(U) Congressional Program Reductions		-25.000	
Congressional Rescissions	-0.470	-0.074	
Congressional Increases			
Reprogrammings	-9.595		
SBIR/STTR Transfer	-2.052		

(U) **Significant Program Changes:**

USAF requested Congress reduce FY09 request by \$25M due to influx of international funds

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

May 2009

BUDGET ACTIVITY		PE NUMBER AND TITLE						PROJECT NUMBER AND TITLE		
<b>07 Operational System Development</b>		<b>0401132F C-130J PROGRAM</b>						<b>5061 C-130J</b>		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5061 C-130J	62.106	27.280	30.019	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

The C-130J is a medium-sized transport aircraft capable of performing a variety of combat delivery (tactical airlift) operations across a broad range of mission environments. The C-130J aircraft, with its extended (by 15 feet) fuselage, provides additional cargo carrying capacity for the USAF combat delivery mission compared with legacy C-130E/H and the C-130J (short). Special mission variants of the C-130J conduct airborne psychological operations (EC-130J), weather reconnaissance (WC-130J), search and rescue (HC-130J), and special operations (MC-130J). All aircraft variants must be capable of worldwide operations.

FY10 C-130J program RDT&E funding provides for:

1.) Participation in the International Co-operative Systems and Software Upgrade Requirements Management (COSSURM). COSSURM participants include the United Kingdom, Australia, Italy, Denmark, Canada, Norway, and the United States. COSSURM provides a mechanism to jointly identify, collect, define, analyze, and price requirements. By combining requirements and resources under COSSURM, each participating country will save in aircraft upgrade costs.

2.) Completion of Block 7.0 Upgrades, testing, and trial kit installation(s). Block 7.0 is the third phase of a four-block upgrade initiative which primarily addresses mandated Communication, Navigation, and Surveillance/Air Traffic Management (CNS/ATM) requirements. Block 7.0 is the first Block Upgrade initiative that is a true International partnership, as the development costs are being shared by each participating nation. Block 7.0 requirements include:

- a.) Communication, Navigation & Identification (CNI) upgrades
- b.) Dual Multi-Mode Receivers (MMR) with TSO C-129A Civil Global Positioning System (GPS)
- c.) CNI Special Processor upgrade
- d.) Tactical Datalink (TDL)
- e.) Mission Computer (MC) upgrades

Block 7.0 (as well as all future Block Upgrades) will be integrated into the training systems integration lab prior to incorporation into the fielded trainers.

3.) Start of Block 8.0 Upgrades. Block 8.0 is the last phase of three block upgrades which will complete all known mandated Communication, Navigation, and Surveillance/Air Traffic Management (CNS/ATM) requirements. Block 8.0 will again be an International partnership with costs being shared by each participating nation. Block 8.0 requirements include:

- a.) TEMPEST Compliance
- b.) IFF transponder Mode-5
- c.) Data-link (line of sight and beyond line of sight)
- d.) ADS-A/B
- e.) Mission Computer (MC) upgrades

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0401132F C-130J PROGRAM</b>	<b>PROJECT NUMBER AND TITLE</b> <b>5061 C-130J</b>
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4.) Other AMC approved initiatives. AMC has prioritized requirements that do not fall within the International Block Upgrade program, which primarily address deficiencies, system improvements, and diminishing manufacturing sources (DMS). This includes Navigation Safety upgrades, Joint Precision Airdrop System, and Large Aircraft Infrared Counter Measures (LAIRCM), among other priorities.

This effort is assigned to Budget Activity 7, as it supports an operational system.

<b>(U) B. Accomplishments/Planned Program (\$ in Millions)</b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) COSSURM payment	1.422	0.700	0.500
(U) Congressional Rescissions, SBIR, Reprogrammings	0.470		
(U) Flight Test	0.151	0.930	0.930
(U) Continue Block 7.0 non-recurring engineering design and software development. Conduct laboratory testing of CNS/ATM / nav safety hardware and software modifications. Procure and install hardware on flight test aircraft and the C-130J trainer integration lab.	33.099	23.200	19.504
(U) Initiate non-recurring engineering design and software development for Block 8 CNS/ATM / nav safety requirements and aircraft deficiencies/product improvements.			4.400
(U) Continue Block 8.1 non-recurring engineering design and software development. Conduct laboratory testing of CNS/ATM / nav safety hardware and software modifications. Procure and install hardware on flight test aircraft and the C-130J trainer integration lab.			
(U) Other AMC approved initiatives	25.222		2.000
(U) International Program Office (IPO) Support (A&AS, Travel, Supplies)	1.742	2.450	2.685
(U) International Block Upgrade Savings			
(U) Total Cost	62.106	27.280	30.019

<b>(U) C. Other Program Funding Summary (\$ in Millions)</b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to Complete</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>		
(U) PE 0401132F, C-130J Procurement (BP1100)										
(U) Mod MN-_6298 Blk 7.0										
(U) Mod MN-_5222 Blk 8.0										TBD

The Mods above are linked to C-130J R&D. There are other C-130J modification projects without associated R&D.

**(U) D. Acquisition Strategy**  
C-130J aircraft will be modified using a 'block upgrade' strategy. The full CNS/ATM / nav safety requirement will be met in three block upgrades: Block 6.0 development was funded from FY03-07. Block 7.0 started in FY07 and Block 8.0, which begins in FY10, should complete the known CNS/ATM and nav safety

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

May 2009

BUDGET ACTIVITY

**07 Operational System Development**

PE NUMBER AND TITLE

**0401132F C-130J PROGRAM**

PROJECT NUMBER AND TITLE

**5061 C-130J**

requirements. The proportion of CNS/ATM / nav safety requirements allocated to Blocks 6.0 through 8.0 was determined via a design trade study conducted by Lockheed Martin (the C-130J prime contractor) and verified by the C-130J system program office and AMC. The development costs are being shared via a Global Project arrangement by the United States (USAF, USMC, USCG), the United Kingdom, Italy, Australia, Denmark, Canada, and Norway. An international program office (IPO), with USAF lead (Wright Patterson AFB, OH) manages the block upgrade development effort. Embodiment of a Block on the aircraft is the responsibility of each nation.

Lockheed Martin will be the prime contractor for these efforts, perform the non-recurring engineering and, following the successful conclusion of flight testing and certification of each block upgrade, will provide production retrofit kits on USAF C-130J aircraft. Installation will be performed by contractor, depot, and Air Force personnel.

UNCLASSIFIED

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE						PROJECT NUMBER AND TITLE			
<b>07 Operational System Development</b>				<b>0401132F C-130J PROGRAM</b>						<b>5061 C-130J</b>			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2008 Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date	Cost to Complete	Total Cost	Target Value of Contract	
(U) <u>Product Development</u>													
Block 7.0, Aeronautical Systems Center (AFMC), WPAFB, OH	CPFF	Lockheed Martin Aeronautics, Marietta GA	11.900	33.099	Dec-07	23.200	Dec-08	19.504	Dec-09		87.703		
Block 8.0, Aeronautical Systems Center (AFMC), WPAFB, OH	CPFF	Lockheed Martin Information Systems, Orlando FL						4.400	Feb-10		4.400		
AMC-I, Warner Robins Logistics Center (AFMC), RAFB, GA	CPFF	Lockheed Martin Aeronautics, Marietta GA		1.200	Jun-09						1.200		
AMC-I, Aeronautical Systems Center (AFMC), WPAFB, OH	CPFF	Misc		5.222	Dec-08			2.000	Feb-10		7.222		
Subtotal Product Development			11.900	39.521		23.200		25.904		0.000	100.525	0.000	
Remarks:	\$18.8M of FY08 3600 funds were removed for Higher AF priorities and is not reflected in the FY2008 actual number of \$62.106M												
(U) <u>Support</u>													
IPO Support	N/A		3.970	1.742		2.450	Nov-08	2.685			10.847		
Subtotal Support			3.970	1.742		2.450		2.685		0.000	10.847	0.000	
Remarks:	A&AS, Travel, Supplies - all vary on support needed												
(U) <u>Test &amp; Evaluation</u>													
Air Force Materiel Command (DT&E)			1.500	0.151		0.930	Oct-08	0.930			3.511		
Subtotal Test & Evaluation			1.500	0.151		0.930		0.930		0.000	3.511	0.000	
Remarks:													
(U) <u>Management</u>													
COSSURM			1.770	1.422		0.700	Oct-08	0.500			4.392		
International Savings											0.000		
Congressional Rescissions				0.470							0.470		
SBIR											0.000		
Reprogrammings				18.800							18.800		
Withhold											0.000		
Subtotal Management			1.770	20.692		0.700		0.500		0.000	23.662	0.000	
Remarks:													
(U) <u>Lockheed Martin Aeronautics, Marietta, GA</u>													
(U) Total Cost			19.140	62.106		27.280		30.019		0.000	138.545	0.000	
Remarks:													

R-1 Line Item No. 221

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Project 5061

Exhibit R-3 (PE 0401132F)

Exhibit R-4, RDT&E Schedule Profile

DATE

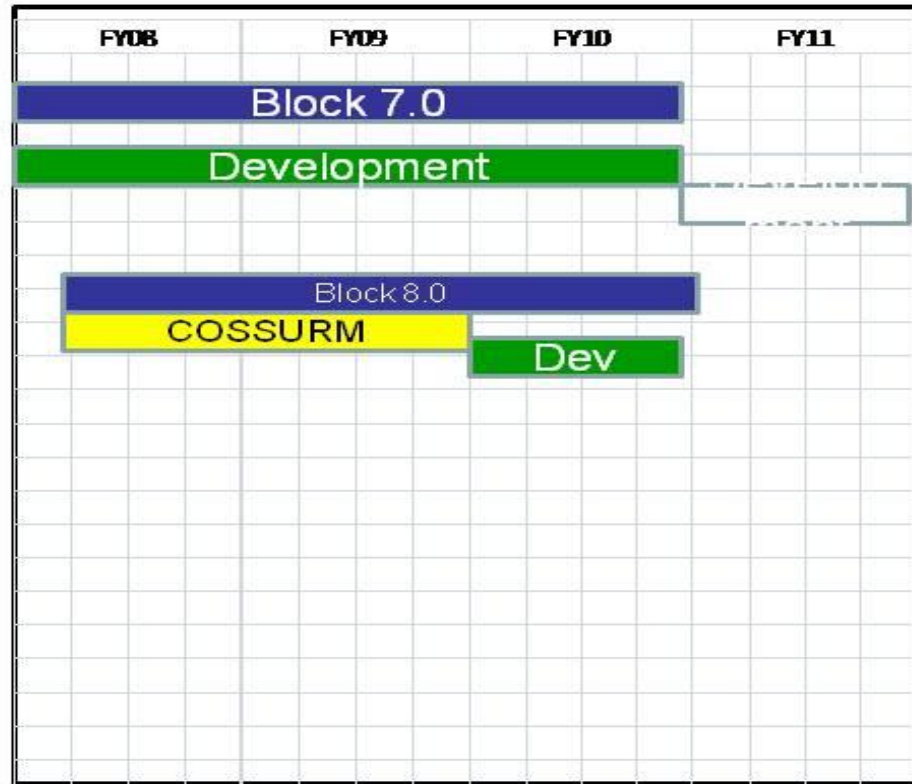
May 2009

BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0401132F C-130J PROGRAM

PROJECT NUMBER AND TITLE  
5061 C-130J

# C-130J Block Upgrade Plan



COSSURM - International Co-operative Systems and Software Upgrade Requirements Management

Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0401132F C-130J PROGRAM

PROJECT NUMBER AND TITLE

5061 C-130J

(U) Schedule Profile

- (U) Block 7.0 FY08 award
- (U) Block 7.0 FY09 award
- (U) Block 7.0 FY10 award
- (U) Block 8.0 FY10 award

FY 2008

1Q

FY 2009

1Q

FY 2010

1Q

2Q



**UNCLASSIFIED**

PE NUMBER: 0401134F

PE TITLE: Large Aircraft InfraRed Counter Measures (LAIRCM)

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0401134F Large Aircraft InfraRed Counter Measures (LAIRCM)</b>
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	17.557	36.401	31.784	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
4942 Large Aircraft Infrared Counter Measures (LAIRCM)	17.557	36.401	31.784	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

**(U) A. Mission Description and Budget Item Justification**

The Large Aircraft Infrared Countermeasures System (LAIRCM) is an evolutionary acquisition program that provides significantly improved defensive systems capability for DoD aircraft to counter the infrared (IR) Man-Portable Air-Defense Systems (MANPADS) missile threat.

The current LAIRCM system configuration [AN/AAQ-24V] consists of an ultra-violet missile-warning sensor (MWS), a laser transmitter assembly, control interface unit and processors to detect, track, jam and counter incoming IR missiles. The number of sensors and turrets per aircraft is determined by the size and signature of the aircraft. This system is fully automatic following system power-up. LAIRCM requirements are documented in the multi-command Operational Requirements Document (ORD) - LAIRCM ORD 314-92, validated on 3 Aug 98. The system was first fielded in May 03 on the C-17 aircraft.

The Baseline program development is complete and consists of the small laser transmitter assembly, ultra-violet MWS, processor, and Control Interface Unit (CIU) and a repeater (on some aircraft) to meet the need for advanced IR countermeasures. The Guardian Laser Transmitter Assembly (GLTA) is an upgrade to the baseline transmitter equipment. First production GLTA delivery occurred in June FY08.

Development of the Next Generation Missile Warning System (NexGen MWS) is new hardware that improves capability. Baseline equipment (ultra-violet MWS) will be retrofitted with the NexGen MWS as it becomes available. Production contract award occurred Oct 08.

LAIRCM UPGRADES--continuous hardware and software upgrades and testing of the LAIRCM system ensure new and emerging threats are defeated. These include, but are not limited to upgrades to the LAIRCM core processor for Engagement Reporting (ER) and software block updates also include the integration of a software block upgrade program and study of Closed Loop Infrared Countermeasure (CLIRCM) capabilities. The LAIRCM program continually integrates potential upgrades for capability and reliability for all Line Replaceable Units (LRUs) and major Shop Replaceable Units (SRUs) to meet/defeat emerging threats. Additionally, upgrades to or development of new support equipment or support equipment capability is captured in the LAIRCM UPGRADES project(s).

Group A integration and testing as well as integration support to incorporate LAIRCM on new platforms including C-130J, multiple potential C-130H/J variants as defined by AMC and AFSOC, and multiple potential Tanker Aircraft variants as defined by AMC will be accomplished.

LAIRCM ATS Development - Develop the capability of the Versatile Automatic Test System (VDATS) for LAIRCM application. The Integrated Life Cycle Management (ILCM) executive agent for Automatic Test Systems (ATS) is focused on reducing weapon system unique ATS through replacement with a Common Versatile ATS tester that can perform similar test across multiple weapons platforms.

LAIRCM is Budget Activity 7, Operational Systems Development, as it is an electronic countermeasures system upgrade to existing weapons systems.

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0401134F Large Aircraft InfraRed Counter Measures (LAIRCM)

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	19.324	32.100	12.073
(U) Current PBR/President's Budget	17.557	36.401	31.784
(U) Total Adjustments	-1.767	4.301	
(U) Congressional Program Reductions			
Congressional Rescissions	-0.123		
Congressional Increases		4.400	
Reprogrammings	-1.115		
SBIR/STTR Transfer	-0.529	-0.099	

(U) **Significant Program Changes:**

FY10 increases are for investment in continued hardware/software upgrades & testing to increase component and system capabilities, and minor rephasing of a/c integration projects.

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>				<b>PE NUMBER AND TITLE</b> <b>0401134F Large Aircraft InfraRed Counter Measures (LAIRCM)</b>				<b>PROJECT NUMBER AND TITLE</b> <b>4942 Large Aircraft Infrared Counter Measures (LAIRCM)</b>			
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total	
4942 Large Aircraft Infrared Counter Measures (LAIRCM)	17.557	36.401	31.784	0.000	0.000	0.000	0.000	0.000	Continuing	TBD	
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0			

**(U) A. Mission Description and Budget Item Justification**

The Large Aircraft Infrared Countermeasures System (LAIRCM) is an evolutionary acquisition program that provides significantly improved defensive systems capability for DoD aircraft to counter the infrared (IR) Man-Portable Air-Defense Systems (MANPADS) missile threat.

The current LAIRCM system configuration [AN/AAQ-24V] consists of an ultra-violet missile-warning sensor (MWS), a laser transmitter assembly, control interface unit and processors to detect, track, jam and counter incoming IR missiles. The number of sensors and turrets per aircraft is determined by the size and signature of the aircraft. This system is fully automatic following system power-up. LAIRCM requirements are documented in the multi-command Operational Requirements Document (ORD) - LAIRCM ORD 314-92, validated on 3 Aug 98. The system was first fielded in May 03 on the C-17 aircraft.

The Baseline program development is complete and consists of the small laser transmitter assembly, ultra-violet MWS, processor, and Control Interface Unit (CIU) and a repeater (on some aircraft) to meet the need for advanced IR countermeasures. The Guardian Laser Transmitter Assembly (GLTA) is an upgrade to the baseline transmitter equipment. First production GLTA delivery occurred in June FY08.

Development of the Next Generation Missile Warning System (NexGen MWS) is new hardware that improves capability. Baseline equipment (ultra-violet MWS) will be retrofitted with the NexGen MWS as it becomes available. Production contract award occurred Oct 08.

LAIRCM UPGRADES--continuous hardware and software upgrades and testing of the LAIRCM system ensure new and emerging threats are defeated. These include, but are not limited to upgrades to the LAIRCM core processor for Engagement Reporting (ER) and software block updates also include the integration of a software block upgrade program and study of Closed Loop Infrared Countermeasure (CLIRCM) capabilities. The LAIRCM program continually integrates potential upgrades for capability and reliability for all Line Replaceable Units (LRUs) and major Shop Replaceable Units (SRUs) to meet/defeat emerging threats. Additionally, upgrades to or development of new support equipment or support equipment capability is captured in the LAIRCM UPGRADES project(s).

Group A integration and testing as well as integration support to incorporate LAIRCM on new platforms including C-130J, multiple potential C-130H/J variants as defined by AMC and AFSOC, and multiple potential Tanker Aircraft variants as defined by AMC will be accomplished.

LAIRCM ATS Development - Develop the capability of the Versatile Automatic Test System (VDATS) for LAIRCM application. The Integrated Life Cycle Management (ILCM) executive agent for Automatic Test Systems (ATS) is focused on reducing weapon system unique ATS through replacement with a Common Versatile ATS tester that can perform similar test across multiple weapons platforms.

LAIRCM is Budget Activity 7, Operational Systems Development, as it is an electronic countermeasures system upgrade to existing weapons systems.

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0401134F Large Aircraft InfraRed Counter Measures (LAIRCM)</b>	<b>PROJECT NUMBER AND TITLE</b> <b>4942 Large Aircraft Infrared Counter Measures (LAIRCM)</b>
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<b>(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Group A Integration	6.414	19.396	16.223
(U) Guardian Laser Transmitter Assembly (GLTA) Program	2.374	0.000	0.000
(U) LAIRCM Upgrades	3.427	12.642	10.055
(U) Testing/Test Program Costs	3.713	3.761	5.306
(U) PMA	1.629	0.602	0.200
(U) LAIRCM Automatic Test System (ATS) Development			
(U) Total Cost	17.557	36.401	31.784

<b>(U) <u>C. Other Program Funding Summary (\$ in Millions)</u></b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) C-130 (AFRC) Procurement (BP1100)	17.431	59.507	1.055							
(U) C-17 Procurement (BP1100)	141.410	106.750	134.093							
(U) C-130 Procurement (BP1100)	26.077	3.047								
(U) C-5 Procurement (BP1100)	18.622	41.671	24.532							
(U) C-130J Procurement (BP1100)		9.000	4.163							

**(U) D. Acquisition Strategy**

The LAIRCM SDD contract was awarded on 28 Sep 01 as a CPAF contract. An IDIQ contract for LAIRCM production hardware and support was awarded in May 06. Hardware and software upgrades will be awarded as separate delivery orders under the IDIQ and other contracts.

The Next Generation Missile Warning System (NextGen MWS) contracts for a Systems Design and Development (SDD) competition were awarded to Northrop Grumman and Lockheed Martin in Jun 04. Both contractors developed, tested and integrated NextGen MWS prototypes during the SDD competition and a source selection (SS) for production was completed. A Milestone C decision was made in May 08. Contract award occurred Oct 08. Integration of the NextGen MWS production hardware will be accomplished with the NextGen MWS production contractor and the platform Group A integrator for the various LAIRCM equipped platforms.

Integration of the LAIRCM subsystems on C-130 variants is accomplished by Northrop Grumman. The contract for AC-130H integration was awarded in FY07. The

## Exhibit R-2a, RDT&amp;E Project Justification

DATE

May 2009

BUDGET ACTIVITY

**07 Operational System Development**

PE NUMBER AND TITLE

**0401134F Large Aircraft InfraRed  
Counter Measures (LAIRCM)**

PROJECT NUMBER AND TITLE

**4942 Large Aircraft Infrared Counter  
Measures (LAIRCM)**

contract for EC-130J integration will be awarded in FY09/10. Contracts were awarded to Lockheed Martin and Northrop Grumman for a C-130J LAIRCM integration study in FY07. Contracts for the design, integration and test of LAIRCM on the C-130J will be awarded to Lockheed Martin and Northrop Grumman in FY09.

LAIRCM Upgrades includes hardware and software upgrades and testing of the LAIRCM system to ensure new and emerging threats will be defeated. These include, but are not limited to, upgrades to the LAIRCM core processor for Engagement Reporting (ER) and software block updates. It also includes the integration of a software block upgrade program and study of Closed Loop Infrared Countermeasure (CLIRCM) capabilities. The LAIRCM program continually integrates potential upgrades for capability and reliability for all Line Replaceable Units (LRUs) and major Shop Replaceable Units (SRUs) to meet/defeat emerging threats. Additionally, upgrades to or development of new support equipment or support equipment capability is captured in the LAIRCM UPGRADES project(s). The Northrop Grumman contract is cost plus fixed fee and is a continuing effort.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0401134F Large Aircraft InfraRed Counter Measures (LAIRCM)</b>	<b>PROJECT NUMBER AND TITLE</b> <b>4942 Large Aircraft Infrared Counter Measures (LAIRCM)</b>
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<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> SDD Phase I	Various	Various	111.158								111.158	
EC-130J Integration	CPFF	Northrop Grumman, Rolling Meadows, IL				0.958	Oct-09	4.393			5.351	
AC-130H Integration	CPFF	Northrop Grumman, Rolling Meadows, IL	9.223								9.223	
AC-130U Integration	CPFF	Northrop Grumman, Rolling Meadows, IL				4.267	Jan-10				4.267	
Next Generation Missile Warning Sensor Integration	CPAF/FFP	Northrop Grumman, Rolling Meadows, IL	17.083								17.083	
Next Generation Missile Warning Sensor Development	CPFF	Northrop Grumman, Rolling Meadows, IL	34.006								34.006	
Next Generation Missile Warning Sensor Development	CPFF	Lockheed Martin, Orlando, FL	11.146								11.146	
GLTA Development	CPFF	Northrop Grumman, Rolling Meadows, IL	41.684	2.374							44.058	
C-5B Development & Integration	CPFF	Lockheed Martin, Marietta, GA	26.277	0.774							27.051	
C-130J Development & Integration	CPAF	Lockheed Martin, Marietta, GA	0.644	5.640		14.171	May-09	11.830			32.285	
LAIRCM Hardware and Software upgrades	CPFF	Northrop Grumman, Rolling Meadows, IL	0.621	3.427		12.642		10.055			26.745	

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Project 4942

Exhibit R-3 (PE 0401134F)

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE		
<b>07 Operational System Development</b>				<b>0401134F Large Aircraft InfraRed Counter Measures (LAIRCM)</b>				<b>4942 Large Aircraft Infrared Counter Measures (LAIRCM)</b>		
Subtotal Product Development			251.842	12.215	32.038	26.278	0.000	322.373	0.000	
Remarks:	FY09 funding for MC-130H is Congressional Add Funding - contract award date TBD.									
(U) <u>Support</u>										
654 AESS	Various	Various	21.125	1.629	0.602	0.200		23.556		
Subtotal Support			21.125	1.629	0.602	0.200	0.000	23.556	0.000	
Remarks:										
(U) <u>Test &amp; Evaluation</u>										
Various Gov't Test Organizations	Various	Various	7.865	3.713	3.761	5.306		20.645		
Subtotal Test & Evaluation			7.865	3.713	3.761	5.306	0.000	20.645	0.000	
Remarks:										
(U) <u>Total System Cost</u>										
(U) Total Cost			280.832	17.557	36.401	31.784	0.000	366.574	0.000	
Remarks:										

Exhibit R-4, RDT&E Schedule Profile

DATE

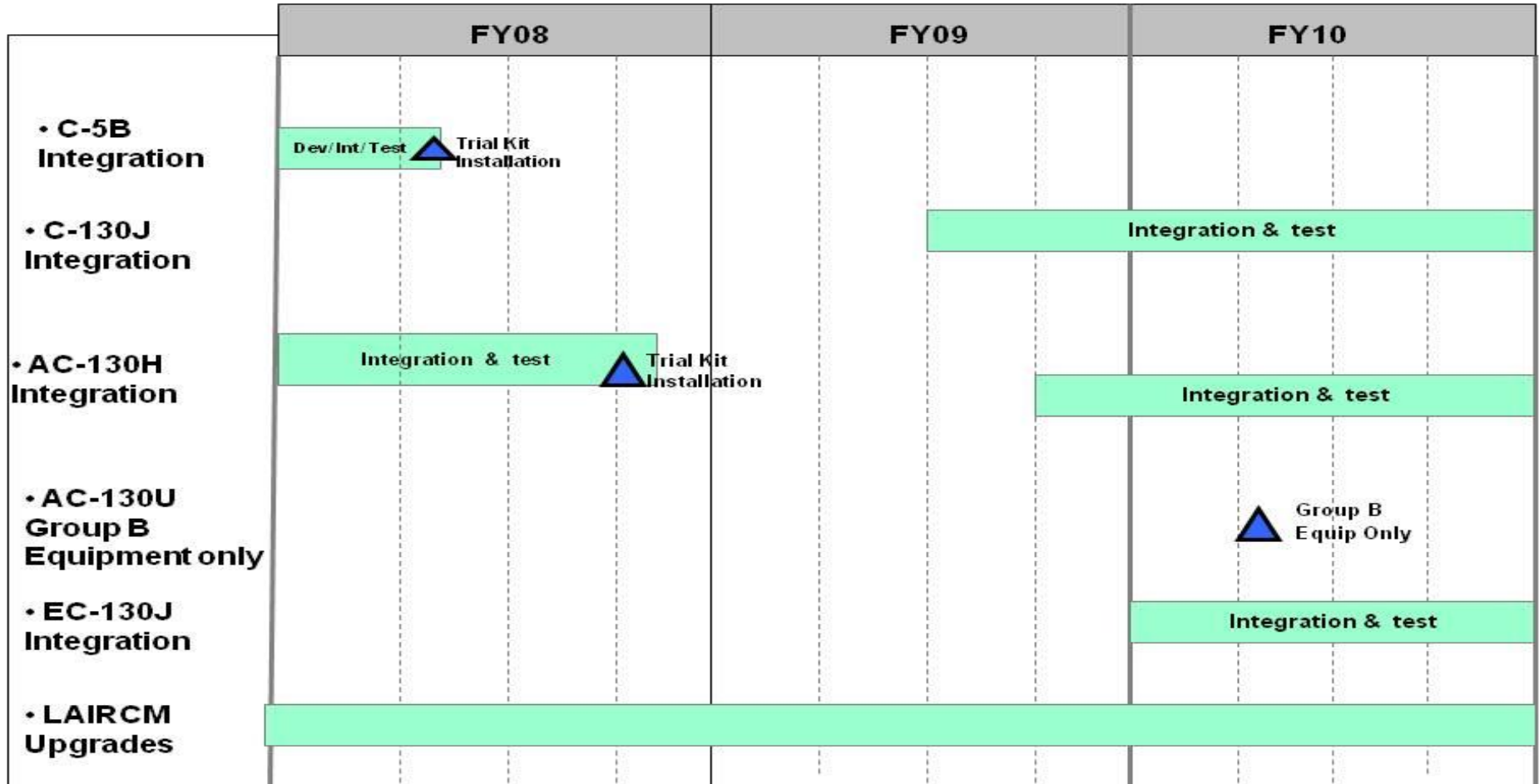
May 2009

BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0401134F Large Aircraft InfraRed  
Counter Measures (LAIRCM)

PROJECT NUMBER AND TITLE  
4942 Large Aircraft Infrared Counter  
Measures (LAIRCM)

# LAIRCM





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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>		DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0401134F Large Aircraft InfraRed Counter Measures (LAIRCM)</b>	<b>PROJECT NUMBER AND TITLE</b> <b>4942 Large Aircraft Infrared Counter Measures (LAIRCM)</b>
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<b>(U) <u>Schedule Profile</u></b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) C-5B Integration	1-2Q		
(U) C-130J Integration		3-4Q	1-4Q
(U) AC-130H Integration	1-4Q		
(U) EC-130J Integration			1-4Q

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PE NUMBER: 0401218F  
 PE TITLE: KC-135s

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0401218F KC-135s</b>
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	7.825	10.305	10.297	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
4494 KC-135 Aging Aircraft Program	1.228	4.348	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5261 KC-135 Upgrades	6.597	5.957	10.297	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

**(U) A. Mission Description and Budget Item Justification**

KC-135 Aging Aircraft Program (674494).

This program supports projects that keep the KC-135 viable for the future. Projects include the analysis and testing efforts in the area of aging aircraft, to include structural, corrosion, fatigue, and stress corrosion cracking. Additionally, the Functional System Integrity Program (FSIP) proactively examines individual aircraft systems for potential impacts due to aging components. The USAF will utilize these activities to improve KC-135 Programmed Depot Maintenance efficiency and to provide direction for future aircraft efforts to sustain the KC-135 as a viable airframe until the planned fleet retirement completion date of 2040.

KC-135 Upgrades (675261).

Block 45 program - Supports a modification program performing analysis, testing, software development, prototyping, documenting source data, and incorporating a new Digital Flight Director (DFD), Radio Altimeter (RA), Autopilot (AP) and Electronic Engine Instrument Displays (EEID).

Enhanced Surveillance (EHS) - Mode S is an upgrade to the currently fielded Elementary Surveillance (ELS) and is currently required by a EUROCONTROL mandate. The EHS upgrade replaces the current APX-100 transponder with the APX-119 transponder.

This program has associated APAF funding in Program Elements 41218F and 41897F.

These efforts support a fielded weapons system and therefore are assigned to Budget Activity 7, Operational Systems Development.

**(U) B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	8.766	7.133	0.000
(U) Current PBR/President's Budget	7.825	10.305	10.297
(U) Total Adjustments	-0.941	3.172	
(U) Congressional Program Reductions	-0.056		
Congressional Rescissions	-0.885		
Congressional Increases		3.172	
Reprogrammings			
SBIR/STTR Transfer			
(U) <u>Significant Program Changes:</u>			

**Exhibit R-2, RDT&E Budget Item Justification**

DATE

**May 2009**

BUDGET ACTIVITY

**07 Operational System Development**

PE NUMBER AND TITLE

**0401218F KC-135s**

Recently the Block 45 program was re-scoped to support modifications to the AP, DFD, RA and delete Night Vision Imaging System (NVIS) and Aeromedical Equipment upgrade. EEID was also added to support replacement of the soon to be obsolete Engine Instruments. As a result, the overall testing and integration efforts have more than doubled. Funds were added in the FY10 Programming cycle to address this change in program requirements.

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>					PE NUMBER AND TITLE <b>0401218F KC-135s</b>			PROJECT NUMBER AND TITLE <b>4494 KC-135 Aging Aircraft Program</b>		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
4494 KC-135 Aging Aircraft Program	1.228	4.348	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

This program supports projects that keep the KC-135 viable into the future. Projects include the analysis and testing efforts in the area of aging aircraft, to include structural, corrosion, fatigue, and stress corrosion cracking. Additionally, the Functional System Integrity Program (FSIP) proactively examines individual aircraft systems for potential impacts due to aging components. The USAF will utilize these activities to improve KC-135 Programmed Depot Maintenance efficiency and to provide direction for future aircraft efforts to sustain the KC-135 as a viable airframe until the planned fleet retirement completion date of 2040.

NOTE: The FY2009 budget contains a \$3.188M Congressional add for the purpose of KC-135R blended winglet development.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Aging Aircraft Studies	0.417	0.375	
(U) Functional Systems Integrity Program (FSIP)/Corrosion & Fatigue Testing	0.500	0.735	
(U) Mission support/contractor support (includes FY09 congressional add for winglets)	0.311	3.238	
(U) Total Cost	1.228	4.348	0.000

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) None										

**(U) D. Acquisition Strategy**

The acquisition strategy consists primarily of separate task orders (with separate statements of work) ranging from fixed price to cost plus contracts. These task orders address a myriad of aging aircraft activities against existing contract vehicles, such as the SPO-managed KC-135 Fleet Support Contract and Design Engineering Program contracts managed through the Air Logistics Centers.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>07 Operational System Development</b>				<b>0401218F KC-135s</b>					<b>4494 KC-135 Aging Aircraft Program</b>			
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
None											0.000	
Subtotal Product Development			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Support</u>												
Aging Aircraft Studies	T&M	Air Force Academy, Colorado Springs, CO		0.417		0.375				0.000	0.792	
Subtotal Support			0.000	0.417		0.375		0.000		0.000	0.792	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
Corrosion & Fatigue Testing/Functional Systems Integrity Program	Fleet Support, T&M/FFP	Boeing, Wichita KS		0.500		0.735				0.000	1.235	
Subtotal Test & Evaluation			0.000	0.500		0.735		0.000		0.000	1.235	0.000
Remarks:												
(U) <u>Management</u>												
(includes the FY09 congressional add for winglets)				0.311		3.238				0.000	3.549	
Subtotal Management			0.000	0.311		3.238		0.000		0.000	3.549	0.000
Remarks:												
(U) Total Cost			0.000	1.228		4.348		0.000		0.000	5.576	0.000

**Exhibit R-4, RDT&E Schedule Profile**

DATE  
**May 2009**

BUDGET ACTIVITY  
**07 Operational System Development**

PE NUMBER AND TITLE  
**0401218F KC-135s**

PROJECT NUMBER AND TITLE  
**4494 KC-135 Aging Aircraft Program**

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Exhibit R-4, RDT&E Schedule Profile

Date: September 2008

BA: 07 Operational System Development

PE 41218F

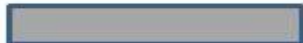
Project: 4494 KC-135 Aging Aircraft

**KC-135 R-4 Schedule Profile**

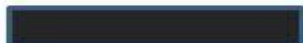
Fiscal Year	FY06				FY07				FY08				FY09			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Corrosion & Fatigue Testing																
FSIP																
Contractor/Management Support																



Major Event or Milestone



Planned Ongoing Activity



Ongoing Activity that is Complete



Completed Event



Planned Task(s)

**Exhibit R-4 (PE 0401218F)  
Project 4494**

**R-1 Line Item No. 214**

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R-1 Line Item No. 223

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Project 4494

Exhibit R-4 (PE 0401218F)

Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0401218F KC-135s

PROJECT NUMBER AND TITLE

4494 KC-135 Aging Aircraft Program

(U) Schedule Profile

FY 2008

FY 2009

FY 2010

(U) Corrosion & Fatigue Testing

1-4Q

1-4Q

(U) FSIP

1-4Q

1-4Q

(U) Congressional Add for KC-135R Blended Winglet Development

3-4Q



Exhibit R-2a, RDT&E Project Justification

DATE  
May 2009

BUDGET ACTIVITY <b>07 Operational System Development</b>				PE NUMBER AND TITLE <b>0401218F KC-135s</b>				PROJECT NUMBER AND TITLE <b>5261 KC-135 Upgrades</b>			
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total	
5261 KC-135 Upgrades	6.597	5.957	10.297	0.000	0.000	0.000	0.000	0.000	Continuing	TBD	
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0			

(U) **A. Mission Description and Budget Item Justification**

The Block 45 modification consists of Digital Flight Director (DFD), Radar Altimeter (RA), Autopilot (AP) and the Electronic Engine Instrument Display (EEID) and is needed to extend the KC-135 as a viable weapon system through Fiscal Year (FY) 2040. There are 417 KC-135 aircraft based throughout the United States, Pacific and Europe that are anticipated to receive the Block 45 modification upgrade. The Block 45 systems mitigate capability gaps identified in the Initial Capabilities Document (ICD) for Aerial Refueling (AR) and the Air Force (AF) Integrated Capability Review and Risk Assessment (I-CRRA), address anticipated airspace restrictions within the global CNS/ATM system and improve overall KC-135 shortcomings in reliability, maintainability and supportability.

Enhanced Surveillance (EHS) - Mode S is an upgrade to the currently fielded Elementary Surveillance (ELS) and is a EUROCONTROL mandate required by Mar 09. The EHS upgrade replaces the current APX-100 transponder with the APX-119 transponder.

This program has associated APAF funding in Program Elements 41218F and 41897F.

These efforts support a fielded weapons system and therefore are assigned to Budget Activity 7, Operational Systems Development.

(U) **B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Block 45 - Non-Recurring Engineering efforts/tasks for all Block 45 sub programs	5.673	5.957	10.297
(U) EHS - Non-Recurring Engineering efforts/tasks for EHS	0.924		
(U) Total Cost	6.597	5.957	10.297

(U) **C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) EHS Mod # 8654										
Procurement C135	6.648	7.900	16.394							30.942
0401218F										

(U) **D. Acquisition Strategy**

Block 45 - The strategy is to have a contracted integrator accomplish the task of performing analysis, testing, software development, prototypes, documentation of source data, and integrating a new Digital Flight Director (DFD), digital Autopilot (AP), digital Radar Altimeter (RA), and Electronic Engine Instrument Display (EEID). The contractor will be responsible for acquiring the necessary information and personnel to integrate each item stated above into the KC-135 legacy systems. The contractor will be responsible for developing, subcontracting, or a combination of the two for the development of the components.

EHS - The strategy is to have a single contractor do NRE. Kits will be purchased and installed as a Field Level Modification. Rockwell Collins is performing

**Exhibit R-2a, RDT&E Project Justification**

DATE

**May 2009**

BUDGET ACTIVITY

**07 Operational System Development**

PE NUMBER AND TITLE

**0401218F KC-135s**

PROJECT NUMBER AND TITLE

**5261 KC-135 Upgrades**

integration, and Raytheon is the supplier for the APX-119.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>07 Operational System Development</b>				<b>0401218F KC-135s</b>					<b>5261 KC-135 Upgrades</b>			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> Block 45 - NRE, engineering, development, and prototype	Sole Source	TBD	0.000	5.673		5.957	Jul-15	10.297			21.927	TBD
EHS - NRE and development	Engineering Assignment (EA)	Rockwell Collins, Inc ( IA/OK)	0.000	0.924							0.924	
Subtotal Product Development Remarks:			0.000	6.597		5.957		10.297		0.000	22.851	TBD
(U) <u>Support</u>		TBD									0.000	
Subtotal Support Remarks:			0.000	0.000		0.000		0.000		0.000	0.000	0.000
(U) <u>Test &amp; Evaluation</u>		TBD									0.000	
Subtotal Test & Evaluation Remarks:			0.000	0.000		0.000		0.000		0.000	0.000	0.000
(U) <u>Management</u>		TBD									0.000	
Subtotal Management Remarks:			0.000	0.000		0.000		0.000		0.000	0.000	0.000
(U)											0.000	
Subtotal Remarks:			0.000	0.000		0.000		0.000		0.000	0.000	0.000
(U)											0.000	
Subtotal Remarks:			0.000	0.000		0.000		0.000		0.000	0.000	0.000
(U) Total Cost			0.000	6.597		5.957		10.297		0.000	22.851	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

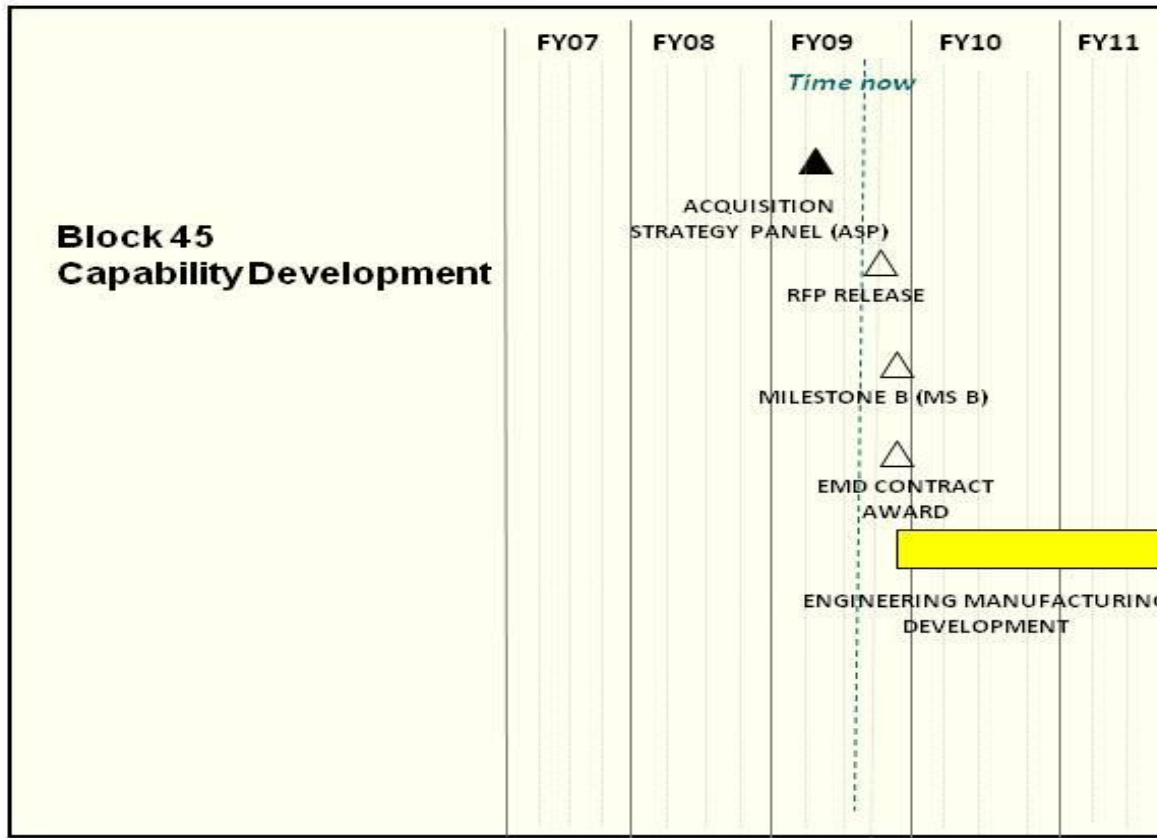
May 2009

BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0401218F KC-135s

PROJECT NUMBER AND TITLE  
5261 KC-135 Upgrades

## KC-135 CNS/ATM (Block 45) Program Schedule (FY10.5 PB)



As of: 15 Apr 09

Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0401218F KC-135s

PROJECT NUMBER AND TITLE

5261 KC-135 Upgrades

(U) <u>Schedule Profile</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Acquisition Strategy Panel (ASP)		1Q	
(U) Engineering Manufacturing Development (EMD) RFP Release		3Q	
(U) Milestone B (MS B)		4Q	
(U) EMD Contract Award		4Q	
(U) EMD		4Q	1-4Q

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PE NUMBER: 0401219F

PE TITLE: KC-10S

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0401219F KC-10S</b>
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	13.510	0.000	35.586	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5195 Aircraft Modernization Program (AMP)	13.510	0.000	35.586	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

**(U) A. Mission Description and Budget Item Justification**

The KC-10A Extender is an aerial refueling asset built on the commercial DC-10 airframe. The aircraft creates an air bridge to enable rapid global mobility and global strike missions. There are 59 aircraft in the USAF tanker fleet.

RDT&E funds throughout the FYDP will be used to support the Communications, Navigation and Surveillance/Air Traffic Management (CNS/ATM) and Boom Control Unit (BCU) modification efforts.

The KC-10 Aircraft Modernization Program (AMP) was the first major modification to the KC-10A Extender and included required CNS upgrades, increased survivability, net-centric operational capabilities, reliability enhancements, Night Vision Imaging System (NVIS), a growth path for Defensive Systems (DS), provisions to support multi-mission payloads, real-time threat information in the cockpit (RTIC), communications upgraded flight data recorder (FDR), fuel system gauges, refueling boom/drogue electronics, and flight engineer station controls/instruments.

In mid-FY07, concept refinement studies addressed potential technical approaches, spiral developments, cockpit commonality and yielded valuable affordability information. Shortly thereafter, HQ AMC decided to reduce program scope based on affordability. As a result, the current effort will consist of three AMP requirements: Communications Navigation Surveillance/Air Traffic Management (CNS/ATM), Boom Control Unit (BCU) and Mode 5. As of Mar 08, OC-ALC assumed management responsibility for the program.

The KC-10 CNS/ATM program will provide worldwide airspace accessibility by FY2015 for the fleet of 59 aircraft. An upgrade of the current Flight Management System (FMS) and Inertial Navigation System (INS) will be required to meet the 2015 CNS/ATM requirements. Avionics components shall use either commercial off-the-shelf (COTS), or military off-the-shelf (MOTS) software and hardware. CNS/ATM requirements include: Required Navigation Performance (RNP-4) Oceanic/Remote for En-route Oceanic Airspace with either 50/50 NM or 30/30 NM separations; Basic Area Nav (BRNAV) for En route European Airspace (9,500ft & up); RNAV 2 & 1 for en route & Terminal airspace operations; Precision-RNAV (P-RNAV) for preferred terminal area routes in Europe (1 NM Accuracy); RNP-4 & RNP-1 for reduced separations en route, and terminal airspace; Time of Arrival Control for Refuel rendezvous (within 30 sec); Automatic Dependent Surveillance-Broadcast (ADS-B) Out for enhanced air and ground surveillance; Global Positioning System (GPS) for enhanced navigation capability; Selective Availability Anti-Spoofing Module (SAASM) for Global Positioning System (GPS) Security; Satellite Data Link for ATS and C2 Communications for flight in Oceanic Airspace (FL310-410); Satellite Voice for Beyond Line of Sight (BLOS) Pilot - Controller Communications and C2 Operations; and VHF Data Link (VDL) Mode-2 for LOS Pilot - Controller Communications and C2 Operations. FAA airworthiness certification of the modification is required.

The KC-10 Boom Control Unit (BCU), responsible for the operation of the KC-10's primary air refueling mission, will soon be unsupportable due to parts

Exhibit R-2, RDT&E Budget Item Justification

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0401219F KC-10S

obsolescence starting in 2010. Once the BCU spares pool is exhausted, any KC-10 requiring a BCU repair or replacement will not be capable of performing its air refueling mission until a replacement unit is fielded. This modification effort replaces the current BCU to overcome these parts obsolescence issues. The replacement BCU will be form, fit, function, and interface identical to the existing unit so as to be fully interchangeable.

This program has associated APAF funding in Program Elements 41219F and 41897F.

These efforts support a fielded weapons system and therefore are assigned to Budget Activity 7, Operational Systems Development.

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	13.703	0.000	0.000
(U) Current PBR/President's Budget	13.510	0.000	35.586
(U) Total Adjustments	-0.193	0.000	
(U) Congressional Program Reductions			
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer	-0.193		
(U) <u>Significant Program Changes:</u>			
Program scope reduced based on affordability.			



<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0401219F KC-10S</b>	<b>PROJECT NUMBER AND TITLE</b> <b>5195 Aircraft Modernization Program (AMP)</b>
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5195 Aircraft Modernization Program (AMP)	13.510	0.000	35.586	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

The KC-10A Extender is an aerial refueling asset built on the commercial DC-10 airframe. The aircraft creates an air bridge to enable rapid global mobility and global strike missions. There are 59 aircraft in the USAF tanker fleet.

RDT&E funds throughout the FYDP will be used to support the Communications, Navigation and Surveillance/Air Traffic Management (CNS/ATM) and Boom Control Unit (BCU) modification efforts.

The KC-10 Aircraft Modernization Program (AMP) was the first major modification to the KC-10A Extender and included required CNS upgrades, increased survivability, net-centric operational capabilities, reliability enhancements, Night Vision Imaging System (NVIS), a growth path for Defensive Systems (DS), provisions to support multi-mission payloads, real-time threat information in the cockpit (RTIC), communications upgraded flight data recorder (FDR), fuel system gauges, refueling boom/drogue electronics, and flight engineer station controls/instruments.

In mid-FY07, concept refinement studies addressed potential technical approaches, spiral developments, cockpit commonality and yielded valuable affordability information. Shortly thereafter, HQ AMC decided to reduce program scope based on affordability. As a result, the current effort will consist of three AMP requirements: Communications Navigation Surveillance/Air Traffic Management (CNS/ATM), Boom Control Unit (BCU) and Mode 5. As of Mar 08, OC-ALC assumed management responsibility for the program.

The KC-10 CNS/ATM program will provide worldwide airspace accessibility by FY2015 for the fleet of 59 aircraft. An upgrade of the current Flight Management System (FMS) and Inertial Navigation System (INS) will be required to meet the 2015 CNS/ATM requirements. Avionics components shall use either commercial off-the-shelf (COTS), or military off-the-shelf (MOTS) software and hardware. CNS/ATM requirements include: Required Navigation Performance (RNP-4) Oceanic/Remote for En-route Oceanic Airspace with either 50/50 NM or 30/30 NM separations; Basic Area Nav (BRNAV) for En route European Airspace (9,500ft & up); RNAV 2 & 1 for en route & Terminal airspace operations; Precision-RNAV (P-RNAV) for preferred terminal area routes in Europe (1 NM Accuracy); RNP-4 & RNP-1 for reduced separations en route, and terminal airspace; Time of Arrival Control for Refuel rendezvous (within 30 sec); Automatic Dependent Surveillance-Broadcast (ADS-B) Out for enhanced air and ground surveillance; Global Positioning System (GPS) for enhanced navigation capability; Selective Availability Anti-Spoofing Module (SAASM) for Global Positioning System (GPS) Security; Satellite Data Link for ATS and C2 Communications for flight in Oceanic Airspace (FL310-410); Satellite Voice for Beyond Line of Sight (BLOS) Pilot - Controller Communications and C2 Operations; and VHF Data Link (VDL) Mode-2 for LOS Pilot - Controller Communications and C2 Operations. FAA airworthiness certification of the modification is required.

The KC-10 Boom Control Unit (BCU), responsible for the operation of the KC-10's primary air refueling mission, will soon be unsupportable due to parts

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0401219F KC-10S</b>	PROJECT NUMBER AND TITLE <b>5195 Aircraft Modernization Program (AMP)</b>
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obsolescence starting in 2010. Once the BCU spares pool is exhausted, any KC-10 requiring a BCU repair or replacement will not be capable of performing its air refueling mission until a replacement unit is fielded. This modification effort replaces the current BCU to overcome these parts obsolescence issues. The replacement BCU will be form, fit, function, and interface identical to the existing unit so as to be fully interchangeable.

This program has associated APAF funding in Program Elements 41219F and 41897F.

These efforts support a fielded weapons system and therefore are assigned to Budget Activity 7, Operational Systems Development.

(U) <b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Development Engineering, Design, and Integration	10.354	0.000	30.807
(U) Studies and Analysis	0.848	0.000	3.000
(U) Government Test and Evaluation	0.000	0.000	0.000
(U) Mission Support	2.308	0.000	1.779
(U)			
(U)			
(U)			
(U)			
(U)			
(U)			
(U) Total Cost	13.510	0.000	35.586

(U) <b><u>C. Other Program Funding Summary (\$ in Millions)</u></b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Boom Control Unit (BCU) Mod # 7727 Procurement			0.056							0.056

(U) **D. Acquisition Strategy**  
The KC-10 CNS/ATM Program will upgrade aircraft systems and avionics capabilities to provide worldwide airspace accessibility by 2015 through the incorporation of the following capabilities: Flight Management System (FMS) Replacement, Inertial Navigation System (INS) Replacement, Global Positioning System (GPS) Replacement, Selective Availability Anti-Spoofing Module (SAASM), Limited Integrated On-board Aircraft Network, and Limited Cockpit Digital Instrumentation

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE				
<b>07 Operational System Development</b>				<b>0401219F KC-10S</b>				<b>5195 Aircraft Modernization Program (AMP)</b>				
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2008 Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date	Cost to Complete	Total Cost	Target Value of Contract
(U) <u>Product Development</u>												
Studies and Analysis	T&M		0.648	0.848		0.000				0.000	1.496	
Development Engineering, Design, and Integration (BCU Phase I)	T&M		0.000	4.811		0.000				0.000	4.811	
Development Engineering, Design, and Integration (BCU Phase II)	T&M			5.543		0.000	May-09				5.543	
Development Engineering, Design, and Integration (BCU Phase III)	T&M							1.920			1.920	
Development Engineering, Design, and Integration (CNS/ATM)	TBD							28.887	Feb-15		28.887	
Subtotal Product Development			0.648	11.202		0.000		30.807		0.000	42.657	0.000
Remarks:												
(U) <u>Support</u>											0.000	
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
Gov Test and Evaluation (BCU)	TBD		0.000					3.000		0.000	3.000	
Gov Test and Evaluation (CNS/ATM)	TBD										0.000	
Subtotal Test & Evaluation			0.000	0.000		0.000		3.000		0.000	3.000	0.000
Remarks:												
(U) <u>Management</u>												
Mission Support	Services	Tinker AFB, OK	0.752	2.308		0.000		1.779			4.839	
											0.000	
											0.000	
											0.000	
Subtotal Management			0.752	2.308		0.000		1.779		0.000	4.839	0.000
Remarks:												
(U) Total Cost			1.400	13.510		0.000		35.586		0.000	50.496	0.000

R-1 Line Item No. 224

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Project 5195

Exhibit R-3 (PE 0401219F)

Exhibit R-4, RDT&E Schedule Profile

DATE

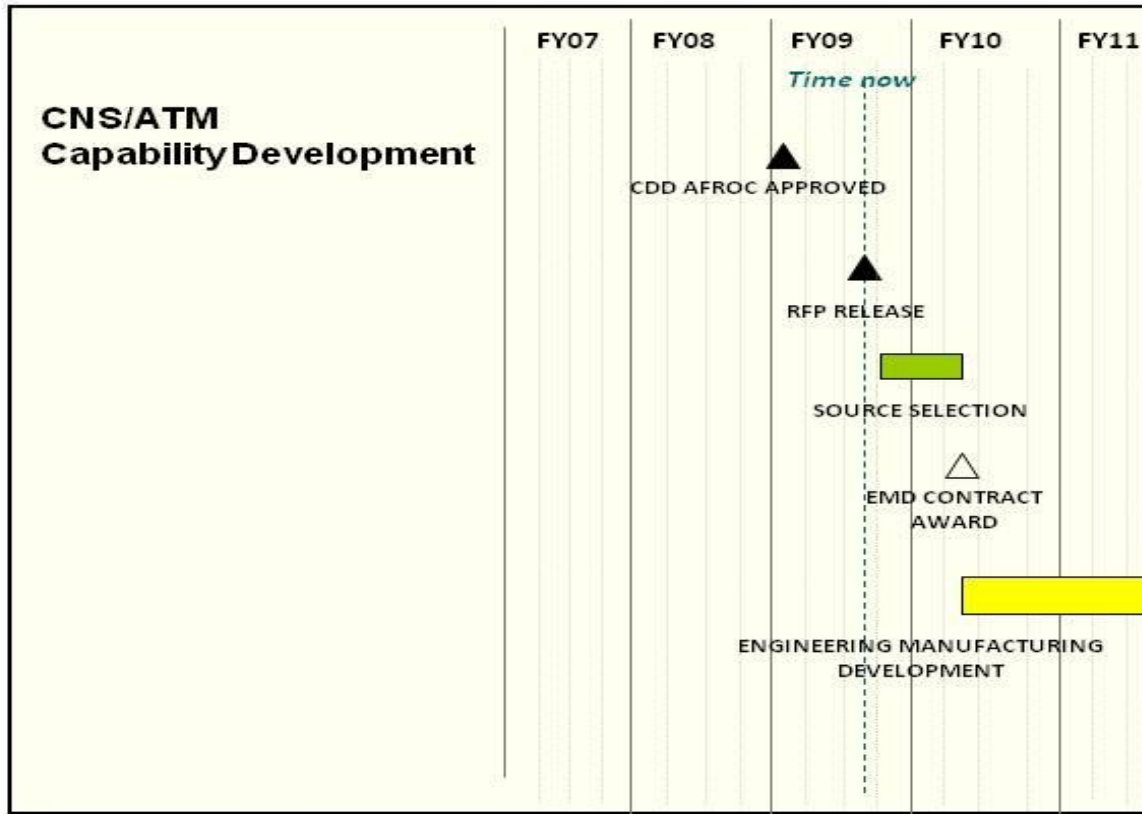
May 2009

BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0401219F KC-10S

PROJECT NUMBER AND TITLE  
5195 Aircraft Modernization Program (AMP)

KC-10 CNS/ATM Program Schedule (FY10.5 PB)



As of: 15 Apr 09

R-1 Line Item No. 224

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Exhibit R-4 (PE 0401219F)

Project 5195

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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0401219F KC-10S</b>	<b>PROJECT NUMBER AND TITLE</b> <b>5195 Aircraft Modernization Program (AMP)</b>
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	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) <b><u>Schedule Profile</u></b>			
(U) Capabilities Development Document (CDD) AFROCC Approved		1Q	
(U) Engineering Manufacturing Development (EMD) RFP Release		2Q	
(U) Source Selection		4Q	1-2Q
(U) EMD Contract Award/Milestone B			2Q

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PE NUMBER: 0401221F  
 PE TITLE: KC-135 Replacement Tanker

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0401221F KC-135 Replacement Tanker</b>
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	29.686	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
4927 KC-135 Replacement Tanker	29.686	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

The Air Force is preparing for a second competition as a result of the SECDEF's termination announcement of the initial KC-X competition on 10 Sep 08. The program schedule and the budget request presented in these documents represent a notional KC-X program. Any required restructuring of the funding will occur after contract award to align the dollars with the Milestone B approved baseline.

The FY05 Appropriations Bill established a \$100M Tanker Replacement Transfer Fund (TRTF). \$10.2M was used by the Air Force in FY05. The FY08 Appropriations Bill cut \$50M in RDT&E, and moved an additional \$150M of FY08 RDT&E into the TRTF -- \$239.8M remained in the TRTF as of 4thQ FY08. The FY09 Appropriations Bill rescinded the balance of the TRTF.

In FY09, KC-135 Replacement Tanker efforts transferred to PE 0605221F, KC-X, Next Generation Aerial Refueling Aircraft, 5271, KC-X RDT&E, in order to move funds to the correct Budget Activity (BA) to correctly represent the scope of the KC-X Program.

**(U) A. Mission Description and Budget Item Justification**

To recapitalize the aging KC-135 fleet of aerial refueling aircraft, the Air Force considered data from an Analysis of Alternatives (AoA), along with industry input that was provided in response to both a Request for Information and two draft Requests for Proposal. Based on this information, the Air Force concluded that a strategy of full and open competition to select a commercial derivative replacement tanker aircraft would result in a best value tanker contract. The resulting KC-X source selection culminated in a 29 Feb 08 contract award to Northrop Grumman to develop and produce a tanker based on the A330-200. On 13 Mar 08, the Air Force issued a stop-work order to that contract in response to a protest filed by Boeing. On 18 Jun 08, the GAO sustained portions of that protest. On 10 Sep 08, SECDEF announced termination of the KC-X competition. The Air Force is preparing for a second competition. On 6 Apr 09, SECDEF announced the KC-X schedule and funding will be maintained with intent to solicit bids in the summer of 2009.

The Air Force needs to replace its aging KC-135 tankers, which have an average age of 48 years. Replacement of the legacy fleet will take place in three stages, known as the KC-X, the KC-Y, and the KC-Z. The initial KC-X increment will replace roughly one-third of the current capability with the purchase of 179 aircraft. The KC-X will be able to provide fuel to joint and coalition receivers via a boom or drogue system on every mission and will also augment the airlift fleet with cargo, passenger and medical evacuation capabilities.

The KC-X will be able to operate in day/night and adverse weather conditions to enable deployment, employment, sustainment and redeployment of U.S. joint, allied and coalition forces. The KC-X will have navigation and communication equipment for world-wide operations; will have the capability to perform missions in chemical and biological environments; will have the capability to operate in low to medium threat areas and near-high threat areas with self-defense/protection (both active and passive) capabilities; and will have necessary battle space awareness to mitigate survivability threats.

**Exhibit R-2, RDT&E Budget Item Justification**

DATE

**May 2009**

BUDGET ACTIVITY

**07 Operational System Development**

PE NUMBER AND TITLE

**0401221F KC-135 Replacement Tanker**

The KC-X development effort will also procure the necessary ground and flight test assets to support developmental/operational test. The program plans to procure four RDT&E aircraft for integration and demonstration of capability that will ultimately be operationally fielded after a successful operational test phase. In addition both aircrew and maintenance Training System Requirements Analyses (TSRA) will be conducted to determine training requirements. Aircrew and Maintenance training systems will be developed and procured via a future trainer-specific source selection, using KC-X funding. A Business Case Analysis will also be conducted to determine if the engines for the production aircraft will be Government Furnished or Contractor Furnished. Initial training and support efforts will be provided via Interim Contractor Support (ICS).

KC-X funding will also support various studies and analyses including support of the international Aerial Refueling Systems and Advisory Group (ARSAG), five-power Future Technology and Aerial Refueling (FTAR) Project, and KC-Y/KC-Z planning activities.

**(U) B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	114.454		
(U) Current PBR/President's Budget	29.686	0.000	
(U) Total Adjustments	-84.768	0.000	
(U) Congressional Program Reductions			
Congressional Rescissions	-72.726		
Congressional Increases			
Reprogrammings	-9.933		
SBIR/STTR Transfer	-2.109		

**(U) Significant Program Changes:**

The Air Force is preparing for a second competition as a result of the SECDEF's termination announcement of the initial KC-X competition on 10 Sep 08. The program schedule and the budget request presented in these documents represent a notional KC-X program. Any required restructuring of the funding will occur after contract award to align the dollars with the Milestone B approved baseline.

The FY05 Appropriations Bill established a \$100M Tanker Replacement Transfer Fund (TRTF). \$10.2M was used by the Air Force in FY05. The FY08 Appropriations Bill cut \$50M in RDT&E, and moved an additional \$150M of FY08 RDT&E into to the TRTF -- \$239.8M remained in the TRTF as of 4thQ FY08. The FY09 Appropriations Bill rescinded the entire balance of the TRTF. Also after the 10 Sep 08 SECDEF decision announcement to terminate, Congress rescinded \$72M of FY08 RDT&E funds and took \$808.8M of FY09 RDT&E.

In FY09, KC-135 Replacement Tanker, efforts transferred to PE 0605221F, KC-X, Next Generation Aerial Refueling Aircraft, 5271, KC-X RDT&E, in order to move funds to the correct Budget Activity (BA) to correctly represent the scope of the KC-X Program.



**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>				<b>PE NUMBER AND TITLE</b> <b>0401221F KC-135 Replacement Tanker</b>				<b>PROJECT NUMBER AND TITLE</b> <b>4927 KC-135 Replacement Tanker</b>		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
4927 KC-135 Replacement Tanker	29.686	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

The Air Force is preparing for a second competition as a result of the SECDEF's termination announcement of the initial KC-X competition on 10 Sep 08. The program schedule and the budget request presented in these documents represent a notional KC-X program. Any required restructuring of the funding will occur after contract award to align the dollars with the Milestone B approved baseline.

The FY05 Appropriations Bill established a \$100M Tanker Replacement Transfer Fund (TRTF). \$10.2M was used by the Air Force in FY05. The FY08 Appropriations Bill reduced \$50M in RDT&E, and moved an additional \$150M of FY08 RDT&E into the TRTF -- \$239.8M remained in the TRTF as of 4thQ FY08. The FY09 Appropriations Bill rescinded the entire balance of the TRTF.

In FY09, KC-135 Replacement Tanker, efforts transferred to PE 0605221F, KC-X, Next Generation Aerial Refueling Aircraft, 5271, KC-X RDT&E, in order to move funds to the correct Budget Activity (BA) to correctly represent the scope of the KC-X Program.

**(U) A. Mission Description and Budget Item Justification**

To recapitalize the aging KC-135 fleet of aerial refueling aircraft, the Air Force considered data from an Analysis of Alternatives (AoA), along with industry input that was provided in response to both a Request for Information and two draft Requests for Proposal. Based on this information, the Air Force concluded that a strategy of full and open competition to select a commercial derivative replacement tanker aircraft would result in a best value tanker contract. The resulting KC-X source selection culminated in a 29 Feb 08 contract award to Northrop Grumman to develop and produce a tanker based on the A330-200. On 13 Mar 08, the Air Force issued a stop-work order to that contract in response to a protest filed by Boeing. On 18 Jun 08, the GAO sustained portions of that protest. On 10 Sep 08, SECDEF announced termination of the KC-X competition. The Air Force is preparing for a second competition. On 6 Apr 09, SECDEF announced the KC-X schedule and funding will be maintained with intent to solicit bids in the summer of 2009.

The Air Force needs to replace its aging KC-135 tankers, which have an average age of 48 years. Replacement of the legacy fleet will take place in three stages, known as the KC-X, the KC-Y, and the KC-Z. The initial KC-X increment will replace roughly one-third of the current capability with the purchase of 179 aircraft. The KC-X will be able to provide fuel to joint and coalition receivers via a boom or drogue system on every mission and will also augment the airlift fleet with cargo, passenger and medical evacuation capabilities.

The KC-X will be able to operate in day/night and adverse weather conditions to enable deployment, employment, sustainment and redeployment of U.S. joint, allied and coalition forces. The KC-X will have navigation and communication equipment for world-wide operations; will have the capability to perform missions in chemical and biological environments; will have the capability to operate in low to medium threat areas and near-high threat areas with self-defense/protection (both active and passive) capabilities; and will have necessary battle space awareness to mitigate survivability threats.

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0401221F KC-135 Replacement Tanker</b>	PROJECT NUMBER AND TITLE <b>4927 KC-135 Replacement Tanker</b>
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The KC-X development effort will also procure the necessary ground and flight test assets to support developmental/operational test. The program plans to procure four RDT&E aircraft for integration and demonstration of capability that will ultimately be operationally fielded after a successful operational test phase. In addition both aircrew and maintenance Training System Requirements Analyses (TSRA) will be conducted to determine training requirements. Aircrew and Maintenance training systems will be developed and procured via a future trainer-specific source selection, using KC-X funding. A Business Case Analysis will also be conducted to determine if the engines for the production aircraft will be Government Furnished or Contractor Furnished. Initial training and support efforts will be provided via Interim Contractor Support (ICS).

KC-X funding will also support various studies and analyses including support of the international Aerial Refueling Systems and Advisory Group (ARSAG), five-power Future Technology and Aerial Refueling (FTAR) Project, and KC-Y/KC-Z planning activities.

<b>(U) B. Accomplishments/Planned Program (\$ in Millions)</b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Non-recurring engineering, RDT&E tanker aircraft and support	0.000		
(U) Test	0.359		
(U) Studies	2.219		
(U) Mission Support	14.108		
(U) Omnibus, Other Sources	13.000		
(U) Total Cost	29.686	0.000	0.000

<b>(U) C. Other Program Funding Summary (\$ in Millions)</b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Aircraft Procurement, BP10	0.000	0.000	0.000						Continuing	TBD
(U) MILCON	0.000	0.000	0.000						Continuing	TBD
(U) O & M	1.047	0.591	16.051						Continuing	TBD

In FY09 KC-135 Replacement Tanker, efforts transferred to PE 0605221F, KC-X, Next Generation Aerial Refueling Aircraft, 5271, KC-X RDT&E, in order to move funds to the correct Budget Activity (BA) to correctly represent the scope of the KC-X Program.

**(U) D. Acquisition Strategy**  
The Air Force is preparing for a second competition as a result of the SECDEF's termination announcement of the initial KC-X competition on 10 Sep 08. The program schedule and the budget request presented in these documents represent a notional KC-X program. Any required restructuring of the funding will occur after contract award to align the dollars with the Milestone B approved baseline.

The Air Force needs to replace its aging KC-135 tankers, which have an average age of 48 years. Replacement of the legacy fleet will take place in three stages, known as the KC-X, the KC-Y, and the KC-Z. The initial KC-X increment will replace roughly one-third of the current capability with the purchase of 179 aircraft.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis										DATE May 2009		
BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0401221F KC-135 Replacement Tanker				PROJECT NUMBER AND TITLE 4927 KC-135 Replacement Tanker				
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2008 Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date	Cost to Complete	Total Cost	Target Value of Contract
(U) <u>Product Development</u> Non-recurring, RDT&E tanker aircraft and support	Cost plus incentive fee	Northrop Grumman	60.599		Feb-08					Continuing	TBD	
Subtotal Product Development			60.599	0.000		0.000		0.000		Continuing	TBD	0.000
Remarks:												
(U) <u>Support</u> Studies and Analysis		ASC/EN/XR, AFVB, Edwards, AFMSS, RAND, ARSAG, FTAR, Eglin, trainers, support contractors	22.018	2.219						Continuing	TBD	
Subtotal Support			22.018	2.219		0.000		0.000		Continuing	TBD	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u> Test and Planning	n/a	AFFTC, AFOTEC, Edwards AFB, Surviac, Live Fire, JITC, Seek Eagle	3.946	0.359						Continuing	TBD	
Subtotal Test & Evaluation			3.946	0.359		0.000		0.000		Continuing	TBD	0.000
Remarks:												
(U) <u>Management</u> 836 Aeronautical Systems Group	n/a	836 AESG, Wright Patterson AFB	35.974	14.108						Continuing	TBD	
Subtotal Management			35.974	14.108		0.000		0.000		Continuing	TBD	0.000
Remarks:												
(U) <u>AF WH, Omnibus, Other Sources</u> Air Force withhold, Omnibus, Other Sources	na		0.000	13.000						Continuing	TBD	
Subtotal AF WH, Omnibus, Other Sources			0.000	13.000		0.000		0.000		Continuing	TBD	0.000
Remarks:												
(U) Total Cost			122.537	29.686		0.000		0.000		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0401221F KC-135 Replacement Tanker

PROJECT NUMBER AND TITLE  
4927 KC-135 Replacement Tanker

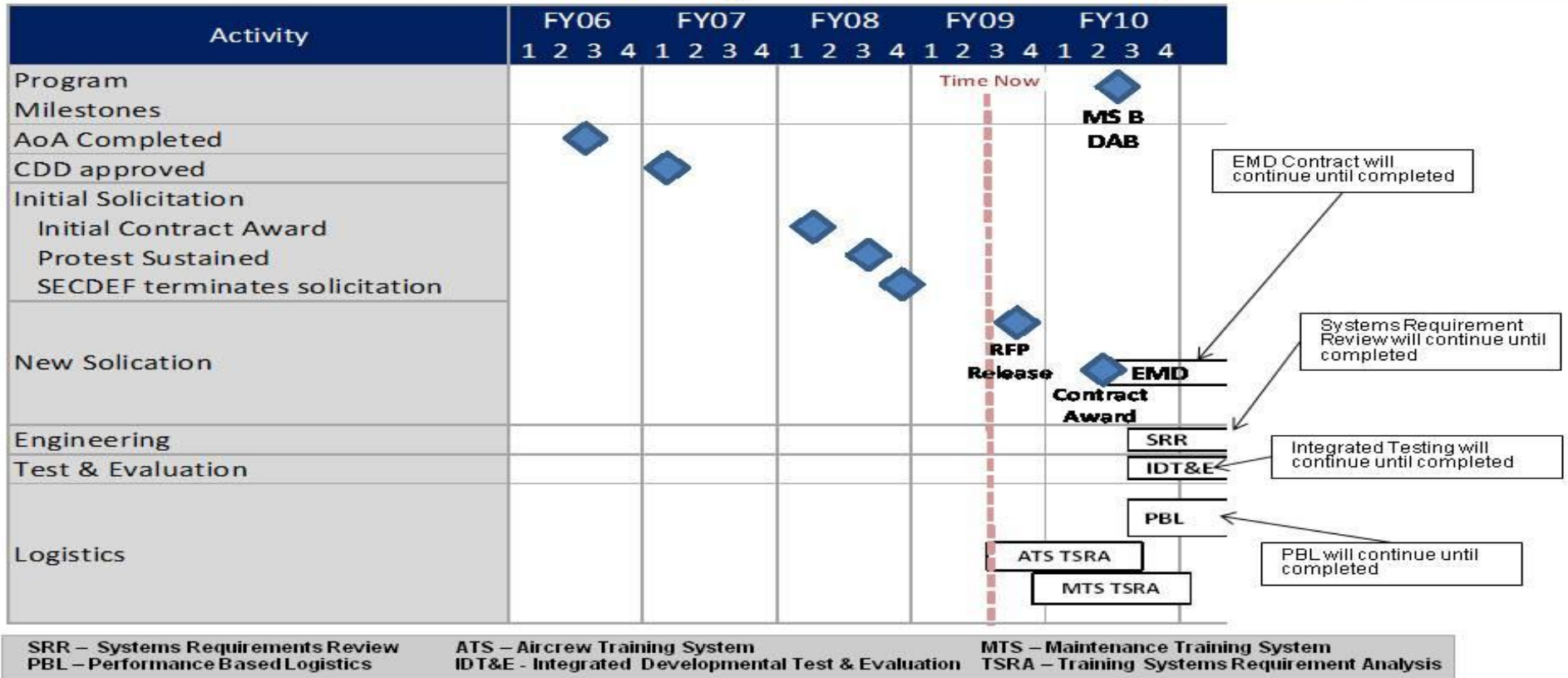


U.S. AIR FORCE



# KC-X Notional Schedule

*Dominant Air Power: Design For Tomorrow... Deliver Today*



EMD Contract will continue until completed

Systems Requirement Review will continue until completed

Integrated Testing will continue until completed

PBL will continue until completed

<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0401221F KC-135 Replacement Tanker</b>	<b>PROJECT NUMBER AND TITLE</b> <b>4927 KC-135 Replacement Tanker</b>
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<b>(U) <u>Schedule Profile</u></b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Non-recurring engineering, RDT&E tanker aircraft and support			
(U) Test	1-4Q		
(U) Studies	1-4Q		
(U) Mission Support	1-4Q		
In FY 2009, 4927, KC-135 Replacement Tanker, efforts transferred to PE 0605221F, KC-X, Next Generation Aerial Refueling Aircraft, 5271, KC-X RDT&E, in order to move funds to the correct Budget Activity (BA) to correctly represent the scope of the KC-X Program.			

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**UNCLASSIFIED**

PE NUMBER: 0401314F  
 PE TITLE: OPERATIONAL SUPPORT AIRLIFT

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0401314F OPERATIONAL SUPPORT AIRLIFT</b>
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	3.870	0.000	4.916	0.000	0.000	0.000	0.000	0.000	0.000	8.786
5233 C-32 Airlift	3.870	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.870
5355 Presidential Aircraft Recapitalization	0.000	0.000	4.916	0.000	0.000	0.000	0.000	0.000	0.000	4.916

(U) **A. Mission Description and Budget Item Justification**  
 FY2010 funding request supports development planning for the Presidential Aircraft Recapitalization (PAR) effort. The PAR will replace the VC-25A system and support the Office of the President in executing Constitutional roles of Commander-in-Chief, Head-of-State, and Chief Executive. The principal mission of the PAR is to provide the President of the United States and the President's staff and guests with safe, comfortable, and reliable air transportation with the same level of security and communications capability as is available at the White House. As a "national level" airborne communications node providing voice, data, video, processed imagery, and network services, the PAR enables the President and traveling staff to address the full range of political and military operations. Funding supports key development planning efforts and products including: systems engineering strategy and analysis; risk analysis and management; concept definition and trade studies; test and evaluation strategy; Life Cycle Cost estimates; sustainment and logistics analysis; information support and network analysis; technology and manufacturing maturity analysis; and acquisition planning and analysis.

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	4.868	0.000	0.000
(U) Current PBR/President's Budget	3.870	0.000	4.916
(U) Total Adjustments	-0.998	0.000	
(U) Congressional Program Reductions			
Congressional Rescissions	-0.031		
Congressional Increases			
Reprogrammings	-0.967		
SBIR/STTR Transfer			
(U) <u>Significant Program Changes:</u>			
None			

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>					PE NUMBER AND TITLE <b>0401314F OPERATIONAL SUPPORT AIRLIFT</b>			PROJECT NUMBER AND TITLE <b>5233 C-32 Airlift</b>		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5233 C-32 Airlift	3.870	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.870
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

Funding for a C-32 executive support aircraft.

**(U) A. Mission Description and Budget Item Justification**

Funding for a C-32 executive support aircraft.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

(U) Funding for a C-32 executive support aircraft.

(U) Total Cost

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
	3.870		
	3.870	0.000	0.000

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	

(U) None

**(U) D. Acquisition Strategy**

Funding for a C-32 executive support aircraft.



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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>07 Operational System Development</b>				<b>0401314F OPERATIONAL SUPPORT AIRLIFT</b>					<b>5233 C-32 Airlift</b>			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>	TBD	TBD	3.700	0.000							3.700	3.700
Subtotal Product Development			3.700	0.000		0.000		0.000		0.000	3.700	3.700
Remarks:												
(U) <u>Support</u>	TBD	TBD	0.050	0.000							0.050	0.050
Subtotal Support			0.050	0.000		0.000		0.000		0.000	0.050	0.050
Remarks:												
(U) <u>Test &amp; Evaluation</u>	TBD	TBD	0.000	0.000							0.000	0.000
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Management</u>	TBD	TBD	0.120	0.000							0.120	0.120
Subtotal Management			0.120	0.000		0.000		0.000		0.000	0.120	0.120
Remarks:												
(U) Total Cost			3.870	0.000		0.000		0.000		0.000	3.870	3.870
This funding will not be executed.												

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0401314F OPERATIONAL SUPPORT  
AIRLIFT

PROJECT NUMBER AND TITLE

5233 C-32 Airlift

Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0401314F OPERATIONAL SUPPORT  
AIRLIFT

PROJECT NUMBER AND TITLE

5233 C-32 Airlift

(U) Schedule Profile

FY 2008

FY 2009

FY 2010

(U) NA

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>							PE NUMBER AND TITLE <b>0401314F OPERATIONAL SUPPORT AIRLIFT</b>		PROJECT NUMBER AND TITLE <b>5355 Presidential Aircraft Recapitalization</b>	
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5355 Presidential Aircraft Recapitalization	0.000	0.000	4.916	0.000	0.000	0.000	0.000	0.000	0.000	4.916
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

This funding supports development planning for the Presidential Aircraft Recapitalization (PAR) effort. The PAR will replace the VC-25A system and support the Office of the President in executing Constitutional roles of Commander-in-Chief, Head-of-State, and Chief Executive. The principal mission of the PAR is to provide the President of the United States and the President's staff and guests with safe, comfortable, and reliable air transportation with the same level of security and communications capability as is available at the White House. As a "national level" airborne communications node providing voice, data, video, processed imagery, and network services, the PAR enables the President and traveling staff to address the full range of political and military operations. Funding supports key development planning efforts and products including: systems engineering strategy and analysis; risk analysis and management; concept definition and trade studies; test and evaluation strategy; life cycle cost estimates; sustainment and logistics analysis; information support and network analysis; technology and manufacturing maturity analysis; and acquisition planning and analysis.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Development planning: Systems engineering strategy and analysis; risk analysis and management; concept definition and trade studies; test and evaluation strategy; life cycle cost estimates; sustainment and logistics analysis; information support and network analysis; technology and manufacturing maturity analysis; and acquisition planning and analysis.	0.000	0.000	4.916
(U) Total Cost	0.000	0.000	4.916

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to Complete</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>		
(U) N/A										

**(U) D. Acquisition Strategy**

N/A

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>07 Operational System Development</b>				<b>0401314F OPERATIONAL SUPPORT AIRLIFT</b>					<b>5355 Presidential Aircraft Recapitalization</b>			
<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>	TBD							4.416			4.416	0.000
Subtotal Product Development			0.000	0.000		0.000		4.416		0.000	4.416	0.000
Remarks:												
(U) <u>Support</u>	TBD										0.000	0.000
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>	TBD										0.000	0.000
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Management</u>	TBD							0.500			0.500	0.000
Subtotal Management			0.000	0.000		0.000		0.500		0.000	0.500	0.000
Remarks:												
(U) Total Cost			0.000	0.000		0.000		4.916		0.000	4.916	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0401314F OPERATIONAL SUPPORT  
AIRLIFT

PROJECT NUMBER AND TITLE

5355 Presidential Aircraft  
Recapitalization

<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>May 2009</b>
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BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0401314F OPERATIONAL SUPPORT AIRLIFT</b>	PROJECT NUMBER AND TITLE <b>5355 Presidential Aircraft Recapitalization</b>
---	--	--

- |   |                |                |                |
|---|----------------|----------------|----------------|
|   | <u>FY 2008</u> | <u>FY 2009</u> | <u>FY 2010</u> |
| <p>(U) <b><u>Schedule Profile</u></b></p> <p>(U) Expect completion of key development planning efforts and products including: systems engineering strategy and analysis; risk analysis and management; concept definition and trade studies; test and evaluation strategy; life cycle cost estimates; sustainment and logistics analysis; information support and network analysis; technology and manufacturing maturity analysis; and acquisition planning and analysis.</p> |                |                | 3-4Q           |

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**UNCLASSIFIED**

PE NUMBER: 0401839F  
 PE TITLE: Airlift/Other Tactical Data Link

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0401839F Airlift/Other Tactical Data Link</b>
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	4.300	7.923	0.000	0.000	0.000	0.000	0.000	0.000	0.000	19.008
5040 Airlift/Other Tactical Data Link	4.300	7.923	0.000	0.000	0.000	0.000	0.000	0.000	0.000	19.008

**(U) A. Mission Description and Budget Item Justification**

Tactical Data Links (TDL), as a subset of the broader Airborne Network, are used in a combat environment to exchange information such as messages, data, radar tracks, target information, platform status, imagery, and command assignments. TDLs provide interoperability, local and global connectivity, and situational awareness to the user when operating under rapidly changing operational conditions. TDLs are used by all service theater Command and Control (C2) elements, weapons platforms, and sensors. TDLs include, but are not limited to: Link-16, Link-11, Situational Awareness Data Link (SADL), Variable Message Format (VMF), Integrated Broadcast Service (IBS), Tactical Targeting Network Technology (TTNT) and Multifunction Advanced Data Link (MADL).

This effort provides critical capability and enhancements to the Airborne Network by creating common development, integration and interoperability across the Air Mobility and Special Operations Forces (SOF) Fleets. This development effort incorporates Line of Sight (LOS) and Beyond Line of Sight (BLOS) TDL capability into the Air Mobility and SOF Fleets to include, but not be limited to: C-17, KC-135, C-130, KC-10, C-5 and other Air Mobility, Refueling, and SOF aircraft. TDLs provide a secure, jam-resistant, digital-data-transfer-network capability with new and standardized waveform and data format allowing intra- and inter-flight communications. TDLs increase mission effectiveness, provide situational awareness, provide positive identification of aircraft in the network, correlate on- and off-board sensor data, target, and threat information. TDL efforts include, but are not limited to: changes and additions to the TDL message standard (MIL-STD-6016D) and other data link interoperability standards including necessary Interface Change Proposals (ICPs); interoperability certification testing with the Joint Interoperability Test Center (JITC); future development, integration, and verification of TDL Operational Flight Program (OFP) upgrades and federated networking components and applications; data gathering processes for future network-centric assessments for all Air Mobility Command (AMC) and Air Force Special Operations Command (AFSOC) platforms; and Joint Tactical Radio System (JTRS) migration activities.

Activities also include studies and analysis to support both current program planning and execution and future program planning.

Airlift/Other Tactical Data Link program is in Budget Activity 7, Operational System Development, since it supports integration of tactical data links into operational systems.

Exhibit R-2, RDT&E Budget Item Justification

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0401839F Airlift/Other Tactical Data Link

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	0.000	0.000	0.000
(U) Current PBR/President's Budget	4.300	7.923	0.000
(U) Total Adjustments	4.300	7.923	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.077	
Congressional Increases		8.000	
Reprogrammings	4.300		
SBIR/STTR Transfer			

(U) **Significant Program Changes:**

In FY09, Congress provided USAF requested transfer of \$12.612M APAF funding to \$8.0M RDT&E funds.

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>					PE NUMBER AND TITLE <b>0401839F Airlift/Other Tactical Data Link</b>			PROJECT NUMBER AND TITLE <b>5040 Airlift/Other Tactical Data Link</b>			
Cost (\$ in Millions)		FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5040	Airlift/Other Tactical Data Link	4.300	7.923	0.000	0.000	0.000	0.000	0.000	0.000	0.000	19.008
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

Tactical Data Links (TDL), as a subset of the broader Airborne Network, are used in a combat environment to exchange information such as messages, data, radar tracks, target information, platform status, imagery, and command assignments. TDLs provide interoperability, local and global connectivity, and situational awareness to the user when operating under rapidly changing operational conditions. TDLs are used by all service theater Command and Control (C2) elements, weapons platforms, and sensors. TDLs include, but are not limited to: Link-16, Link-11, Situational Awareness Data Link (SADL), Variable Message Format (VMF), Integrated Broadcast Service (IBS), Tactical Targeting Network Technology (TTNT) and Multifunction Advanced Data Link (MADL).

This effort provides critical capability and enhancements to the Airborne Network by creating common development, integration and interoperability across the Air Mobility and Special Operations Forces (SOF) Fleets. This development effort incorporates Line of Sight (LOS) and Beyond Line of Sight (BLOS) TDL capability into the Air Mobility and SOF Fleets to include, but not be limited to: C-17, KC-135, C-130, KC-10, C-5 and other Air Mobility, Refueling, and SOF aircraft. TDLs provide a secure, jam-resistant, digital-data-transfer-network capability with new and standardized waveform and data format allowing intra- and inter-flight communications. TDLs increase mission effectiveness, provide situational awareness, provide positive identification of aircraft in the network, correlate on- and off-board sensor data, target, and threat information. TDL efforts include, but are not limited to: changes and additions to the TDL message standard (MIL-STD-6016D) and other data link interoperability standards including necessary Interface Change Proposals (ICPs); interoperability certification testing with the Joint Interoperability Test Center (JITC); future development, integration, and verification of TDL Operational Flight Program (OFP) upgrades and federated networking components and applications; data gathering processes for future network-centric assessments for all Air Mobility Command (AMC) and Air Force Special Operations Command (AFSOC) platforms; and Joint Tactical Radio System (JTRS) migration activities.

Activities also include studies and analysis to support both current program planning and execution and future program planning.

Airlift/Other Tactical Data Link program is in Budget Activity 7, Operational System Development, since it supports integration of tactical data links into operational systems.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) MAF/Data Link Integration (DLI) program support	1.474	1.895	
(U) MAF/Data Link Integration (DLI) Group A Risk Reduction	2.399		
(U) MAF/Data Link Integration (DLI) ANI Enterprise Projects		1.028	
(U) MAF/Data Link Integration (DLI) Test & Certification	0.427		
(U) C-130 AMP AMF JTRS Risk Reduction		2.800	
(U) AFRL Lab Development		2.200	

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0401839F Airlift/Other Tactical Data Link</b>	<b>PROJECT NUMBER AND TITLE</b> <b>5040 Airlift/Other Tactical Data Link</b>
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(U) <b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Total Cost	4.300	7.923	0.000

		<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to Complete</u>	<u>Total Cost</u>
		<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>		
(U) RDT&E (3600)											
(U) 0207434F (Link 16 Sup & Sus)		186.371	192.460	0.000						Continuing	TBD
(U) 0207445F (Fighter TDL)		57.424	57.264	72.106							186.794
(U) 0207446F (Bomber TDL)		38.280	11.603	0.000							49.883
(U) 0207448F (C2ISR TDL)		1.745	1.719	1.667						Continuing	TBD
(U) 0604281F (TDN Enterprise)		0.000	0.000	88.444							
(U) Procurement (3010)											
(U) 0207434F (Link 16 Sup & Sus)		0.001	0.008	0.000						Continuing	TBD
(U) 0207445F (Fighter TDL)		24.877	5.788	9.616							40.281
(U) 0207446F (Bomber TDL)		4.426	0.000	0.000							4.426
(U) 0401839F (Airlift TDL)		12.394	0.000	0.000						Continuing	TBD
(U) Procurement (3080)											
(U) 0207434F (Link 16 Sup & Sus)		22.980	16.079	0.000						Continuing	TBD
(U) 0604281F (TDN Enterprise)		0.000	0.000	32.441							
(U) O&M (3400)											
(U) 0207434F (Link 16 Sup & Sus)		29.405	22.104	0.359						Continuing	TBD
(U) 0207445F (Fighter RD)		0.300	0.281	0.219							
(U) 0401839F (Airlift TDL)		3.907	6.469	10.242						Continuing	TBD
(U) 0604281F (TDN Enterprise)		0.000	0.000	34.850							

(U) **D. Acquisition Strategy**  
 The 653rd Electronics Systems Group (ELSG) provides for common development of integration and interoperability across the entire Airborne Network and ensures that TDLs are procured and maintained as joint, end-to-end, command-and-control systems. Platform acquisition strategies vary by program, but the majority of

Exhibit R-2a, RDT&E Project Justification

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0401839F Airlift/Other Tactical Data Link

PROJECT NUMBER AND TITLE

5040 Airlift/Other Tactical Data Link

development and integration is normally accomplished by the weapon system prime contractor.

Exhibit R-3, RDT&E Project Cost Analysis

DATE

May 2009

BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE				
<b>07 Operational System Development</b>				<b>0401839F Airlift/Other Tactical Data Link</b>				<b>5040 Airlift/Other Tactical Data Link</b>				
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2008 Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date	Cost to Complete	Total Cost	Target Value of Contract
(U) <u>Product Development</u>												
Group A Risk Reduction/Design	Various	Various	4.800	2.399	May-08					0.000	7.199	TBD
C-130 AMP AMF JTRS Risk Reduction	Various	Various				2.800	Jan-09				2.800	
AFRL Lab Development	Various	AFRL, Dayton, Ohio				2.200	Jan-09				2.200	
Subtotal Product Development			4.800	2.399		5.000		0.000		0.000	12.199	TBD
Remarks:												
(U) <u>Support</u>												
Information Support Plan/Capability Development Document (ISP/CDD) Documentation at AMC	MIPR	NAVSEA Indian Head, MD	0.504								0.504	
Subtotal Support			0.504	0.000		0.000		0.000		0.000	0.504	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
Test	MIPR or PO	46th Test Squadron, JITC and CECOM	0.140	0.427	Sep-08						0.567	TBD
Subtotal Test & Evaluation			0.140	0.427		0.000		0.000		0.000	0.567	TBD
Remarks:												
(U) <u>Management</u>												
Program Office and Contractor Support	C/FFP	Various	0.000			0.000				0.000	0.000	TBD
Subtotal Management			1.341	1.474	Aug-08	1.895	Jan-09			0.000	4.710	TBD
Remarks:			1.341	1.474		1.895					4.710	TBD
(U) <u>Product Development</u>												
ANI Enterprise Development	Various	Various				1.028	Mar-09				1.028	
Subtotal Product Development			0.000	0.000		1.028		0.000		0.000	1.028	0.000
Remarks:												
(U) Total Cost			6.785	4.300		7.923		0.000		0.000	19.008	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE  
**May 2009**

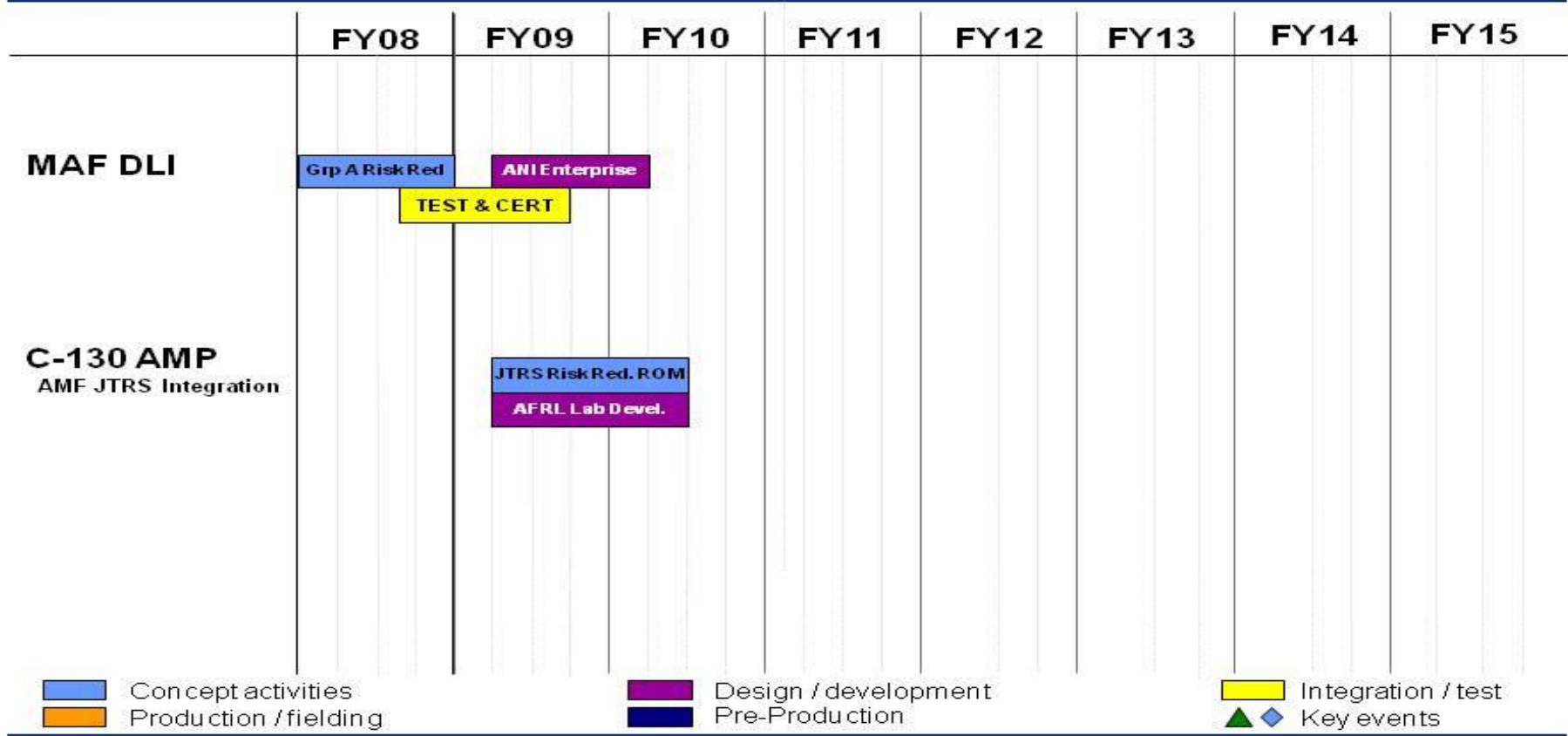
BUDGET ACTIVITY  
**07 Operational System Development**

PE NUMBER AND TITLE  
**0401839F Airlift/Other Tactical Data Link**

PROJECT NUMBER AND TITLE  
**5040 Airlift/Other Tactical Data Link**



# MAF DLI Program Schedule (as of 20 Apr 2009)



**PB10 R-Docs**

Depicted by in stallation/production flow

1

R-1 Line Item No. 227

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Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0401839F Airlift/Other Tactical Data Link

PROJECT NUMBER AND TITLE

5040 Airlift/Other Tactical Data Link

(U) Schedule Profile

- (U) Group A Risk Reduction
- (U) AMF JTRS Risk Reduction
- (U) AFRL Lab Development
- (U) ANI Enterprise Projects
- (U) MAF/DLI Test & Certification

FY 2008

1-4Q

FY 2009

2-4Q

2-4Q

2-4Q

1-3Q

FY 2010



**UNCLASSIFIED**

PE NUMBER: 0408011F  
 PE TITLE: SPECIAL TACTICS/COMBAT CONTROL

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>May 2009</b>
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BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0408011F SPECIAL TACTICS/COMBAT CONTROL</b>
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	7.868	7.707	8.222	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5138 ST System Development	7.868	7.707	8.222	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

**(U) A. Mission Description and Budget Item Justification**

Battlefield Air Operations (BAO) Kit is a program within the overarching Battlefield Airmen Modernization (BA-Mod) Program. BAO Kit will develop a Family of Systems (FoS) that provides a state-of-the-art Command, Control, Communications, Computer, Intelligence, Surveillance and Reconnaissance (C4ISR) suite for AFSOC's Battlefield Airmen. BAO Kit will enhance the three core capabilities of Line of Sight (LOS) targeting, Beyond Line of Sight (BLOS) targeting, and Battlefield Air Operations Human Machine Interface (BAO HMI) while reducing the risk of fratricide and substantially reducing the weight carried. This program will develop and enhance technologies for Battlefield Airmen Combat Controllers (CCT) to recognize, identify, range, nominate and designate targets during both day and night. BAO Kit will also significantly reduce the time required to find, fix, track, target and engage the enemy by providing highly accurate target grid coordinates in three dimensions, generating target imagery both pre and post-strike, and transmitting target data to Command and Control centers. All BAO Kit systems are light, compact and portable for use by dismounted Battlefield Airmen. The significant improvements in operational capability, BAO Kit Increment II, will build upon the HMI and BLOS effort and deliver enhanced capability for the dismounted soldier in terms of dramatic weight reduction, and increased mission effectiveness across the conflict spectrum.

This program is in Budget Activity 7, Operational System Development, since it improves the already fielded capabilities of the Battlefield Airmen Combat Control Teams by demonstrating technology, component and subsystem maturity.

**(U) B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	8.074	5.776	8.363
(U) Current PBR/President's Budget	7.868	7.707	8.222
(U) Total Adjustments	-0.206	1.931	
(U) Congressional Program Reductions		-0.021	
Congressional Rescissions			
Congressional Increases		1.952	
Reprogrammings			
SBIR/STTR Transfer	-0.206		
(U) <u>Significant Program Changes:</u>			

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>							PE NUMBER AND TITLE <b>0408011F SPECIAL TACTICS/COMBAT CONTROL</b>		PROJECT NUMBER AND TITLE <b>5138 ST System Development</b>	
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5138 ST System Development	7.868	7.707	8.222	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

Battlefield Air Operations (BAO) Kit is a program within the overarching Battlefield Airmen Modernization (BA-Mod) Program. BAO Kit will develop a Family of Systems (FoS) that provides a state-of-the-art Command, Control, Communications, Computer, Intelligence, Surveillance and Reconnaissance (C4ISR) suite for AFSOC's Battlefield Airmen. BAO Kit will enhance the three core capabilities of Line of Sight (LOS) targeting, Beyond Line of Sight (BLOS) targeting, and Battlefield Air Operations Human Machine Interface (BAO HMI) while reducing the risk of fratricide and substantially reducing the weight carried. This program will develop and enhance technologies for Battlefield Airmen Combat Controllers (CCT) to recognize, identify, range, nominate and designate targets during both day and night. BAO Kit will also significantly reduce the time required to find, fix, track, target and engage the enemy by providing highly accurate target grid coordinates in three dimensions, generating target imagery both pre and post-strike, and transmitting target data to Command and Control centers. All BAO Kit systems are light, compact and portable for use by dismounted Battlefield Airmen. The significant improvements in operational capability, BAO Kit Increment II, will build upon the HMI and BLOS effort and deliver enhanced capability for the dismounted soldier in terms of dramatic weight reduction, and increased mission effectiveness across the conflict spectrum.

This program is in Budget Activity 7, Operational System Development, since it improves the already fielded capabilities of the Battlefield Airmen Combat Control Teams by demonstrating technology, component and subsystem maturity.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Continue BAO Kit system and equipment development	3.900	4.560	7.297
(U) Continue BAO Kit software development (rolled into BAO Kit system and equipment development in FY08 and 09)	3.349	2.431	0.474
(U) Continue system test and evaluation efforts	0.519	0.516	0.231
(U) Continue program office operations effort	0.100	0.200	0.220
(U) Total Cost	7.868	7.707	8.222

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Tactical C-E Equipment Other Procurement, AF PE 0408011F	6.228	12.484	9.565	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

**(U) D. Acquisition Strategy**

The evolutionary acquisition strategy will focus on meeting immediate requirements with current technology while pursuing future increments for improved accuracy,

**Exhibit R-2a, RDT&E Project Justification**

DATE

**May 2009**

BUDGET ACTIVITY

**07 Operational System Development**

PE NUMBER AND TITLE

**0408011F SPECIAL  
TACTICS/COMBAT CONTROL**

PROJECT NUMBER AND TITLE

**5138 ST System Development**

increased vertical and horizontal integration, and reduced weight. Future increments will be incorporated as funding and technology allow.

UNCLASSIFIED

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>07 Operational System Development</b>				<b>0408011F SPECIAL TACTICS/COMBAT CONTROL</b>					<b>5138 ST System Development</b>			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2008 Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date	Cost to Complete	Total Cost	Target Value of Contract
(U) <u>Product Development</u>												
Human Machine Interface (HMI)	C/Various	Various	6.149	3.300	Jun-08	4.750	Jun-09	7.297	Apr-10	Continuing	TBD	TBD
Line of Sight						0.050					0.050	
Machine-To-Machine C4ISR System	C/CPFF	Systems Research & Applications Corp, Dayton, Ohio						0.474	Dec-09	Continuing	TBD	TBD
Beyond Line of Sight Targeting System	C/CPFF	Various	0.600	3.243	Jun-08	2.470	Jun-09	0.000		Continuing	TBD	TBD
Subtotal Product Development			6.749	6.543		7.270		7.771		Continuing	TBD	TBD
Remarks:												
(U) <u>Support</u>												
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
Test Agency Support	MIPR	46TS, Eglin AFB, FL	0.132	0.125				0.231	Jan-10		0.488	
Integration and Certification	Various	Various	0.600	0.600		0.437	Dec-08			Continuing	TBD	TBD
Subtotal Test & Evaluation			0.732	0.725		0.437		0.231		Continuing	TBD	TBD
Remarks:												
(U) <u>Management</u>												
Program Office Support	Various	Various	0.593	0.600				0.220	Nov-09	Continuing	TBD	TBD
Subtotal Management			0.593	0.600		0.000		0.220		Continuing	TBD	TBD
Remarks:												
(U)												
Subtotal			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			8.074	7.868		7.707		8.222		Continuing	TBD	TBD

R-1 Line Item No. 228

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Project 5138

Exhibit R-3 (PE 0408011F)

Exhibit R-4, RDT&E Schedule Profile

DATE

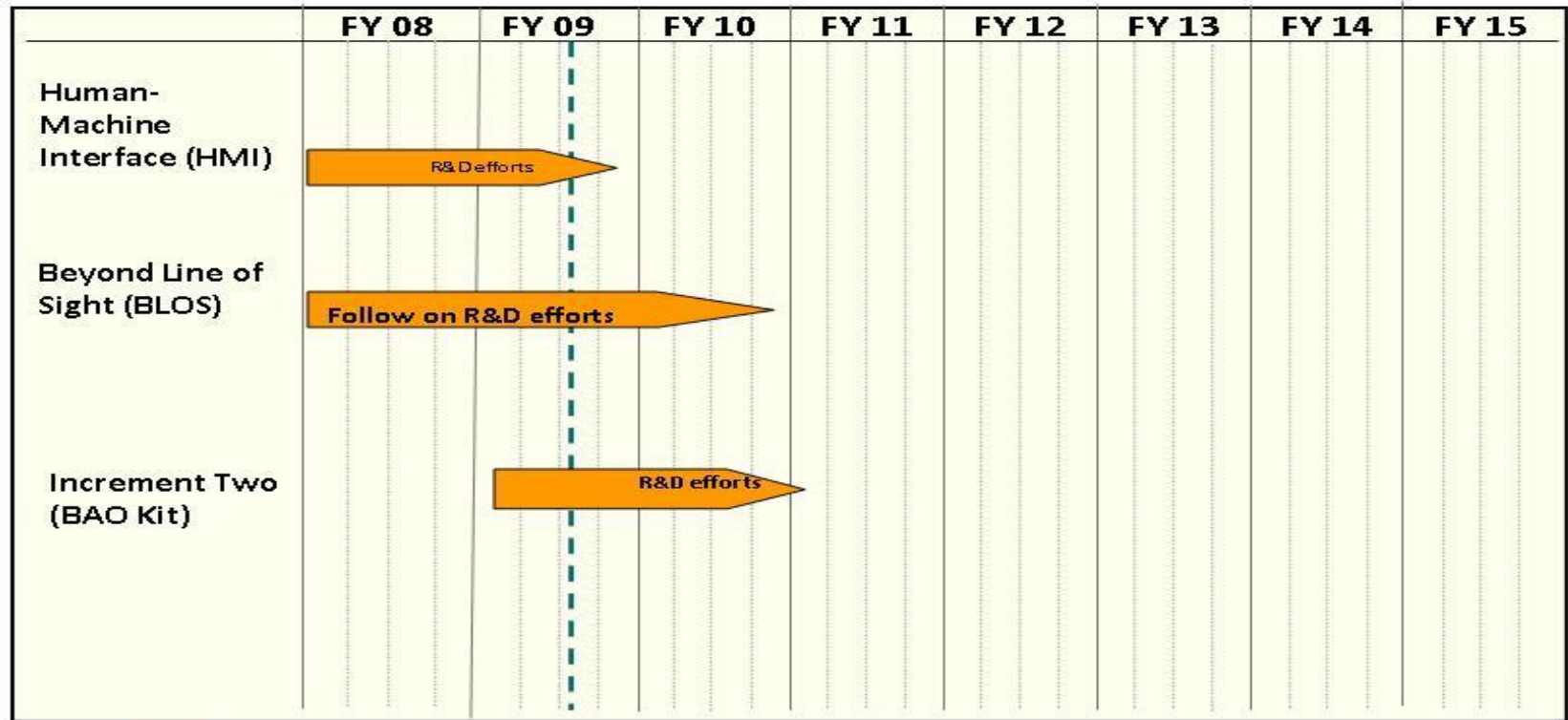
May 2009

BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0408011F SPECIAL  
TACTICS/COMBAT CONTROL

PROJECT NUMBER AND TITLE  
5138 ST System Development

# BAO Kit Schedule



 R&D

UNCLASSIFIED

**Exhibit R-4a, RDT&E Schedule Detail**

DATE

**May 2009**

BUDGET ACTIVITY

**07 Operational System Development**

PE NUMBER AND TITLE

**0408011F SPECIAL  
TACTICS/COMBAT CONTROL**

PROJECT NUMBER AND TITLE

**5138 ST System Development**

(U) Schedule Profile

FY 2008

FY 2009

FY 2010

(U) HMI Research & Development

1-4Q

1-4Q

(U) Beyond LOS Development

1-4Q

1-4Q

1-4Q

(U) Increment II

1-4Q

1-4Q

**UNCLASSIFIED**

PE NUMBER: 0702207F  
 PE TITLE: Depot Maintenance (Non-IF)

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0702207F Depot Maintenance (Non-IF)</b>
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	1.459	1.527	1.508	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
3326 Precision Measurement & Calibration	1.459	1.527	1.508	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

**(U) A. Mission Description and Budget Item Justification**

This program develops, tests, and evaluates national and Air Force measurement standards (hardware) and calibration equipment in support of all Air Force programs and activities, including Precision Measurement Equipment Laboratories (PMELs) worldwide. Metrology research and development provides technology to support systems in all phases of development and acquisition, as well as Air Force R&D laboratories, test ranges, ground test facilities, and operational weapons systems support. Rapidly changing technology requires continuing research and development of measurement standards and calibration equipment to ensure modern weapon systems meet Air Force readiness objectives. This program addresses all metrology disciplines and includes the technology areas of laser, infrared, microwave, millimeter wave, optical, physical, mechanical, electrical, electronic, and ionizing radiation measurements. Metrology is a technical discipline devoted to the science of measurements and to the study and improvement of measurement technology. Measurements are the foundation of military system development, quality assurance, hardware conformance testing and system readiness tests. The integrity of these tests is assured through calibration and traceability assurance schemes. The capability to measure and calibrate must parallel the emergence of new technology, new ranges, and new capabilities of military systems. Lack of new measurement capability impedes or blocks the successful exploitation of new technologies, especially in the movement from development laboratory to production to deployment. R&D efforts are essential within the DoD to pace these requirements, otherwise, these same new systems will suffer time delays, excessive cost, and increased risk due to unreliable test results in all phases of development, production, deployment and operation.

This program is in budget activity 7 - Operational System Development because it supports operational systems.

**(U) B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	1.501	1.531	1.562
(U) Current PBR/President's Budget	1.459	1.527	1.508
(U) Total Adjustments	-0.042	-0.004	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.004	
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer	-0.042		
(U) <u>Significant Program Changes:</u>			
None			

Exhibit R-2a, RDT&E Project Justification

DATE  
**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>					PE NUMBER AND TITLE <b>0702207F Depot Maintenance (Non-IF)</b>			PROJECT NUMBER AND TITLE <b>3326 Precision Measurement &amp; Calibration</b>		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
3326 Precision Measurement & Calibration	1.459	1.527	1.508	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) **A. Mission Description and Budget Item Justification**

This program develops, tests, and evaluates national and Air Force measurement standards (hardware) and calibration equipment in support of all Air Force programs and activities, including Precision Measurement Equipment Laboratories (PMELs) worldwide. Metrology research and development provides technology to support systems in all phases of development and acquisition, as well as Air Force R&D laboratories, test ranges, ground test facilities, and operational weapons systems support. Rapidly changing technology requires continuing research and development of measurement standards and calibration equipment to ensure modern weapon systems meet Air Force readiness objectives. This program addresses all metrology disciplines and includes the technology areas of laser, infrared, microwave, millimeter wave, optical, physical, mechanical, electrical, electronic, and ionizing radiation measurements. Metrology is a technical discipline devoted to the science of measurements and to the study and improvement of measurement technology. Measurements are the foundation of military system development, quality assurance, hardware conformance testing and system readiness tests. The integrity of these tests is assured through calibration and traceability assurance schemes. The capability to measure and calibrate must parallel the emergence of new technology, new ranges, and new capabilities of military systems. Lack of new measurement capability impedes or blocks the successful exploitation of new technologies, especially in the movement from development laboratory to production to deployment. R&D efforts are essential within the DoD to pace these requirements, otherwise, these same new systems will suffer time delays, excessive cost, and increased risk due to unreliable test results in all phases of development, production, deployment and operation.

This program is in budget activity 7 - Operational System Development because it supports operational systems.

(U) **B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Continue development of national measurement standards to support Air Force infrared / laser / electro-optical weapon systems and support equipment.	0.442	0.460	0.454
(U) Continue development of standards for electrical measurements to support high accuracy electronic test equipment.	0.321	0.402	0.285
(U) Continue development of standards for radar support, RF communication systems, and radar cross section range measurements.	0.197	0.185	0.240
(U) Continue the development of improved calibration standards to support physical, mechanical and electro-mechanical support equipment.	0.170	0.255	0.265
(U) Continue the development of national standards for calibration of ionizing radiation hazard instrumentation.	0.039	0.040	0.040
(U) Continue development of improved standards and procedures to support chemical/biological measurements	0.158	0.100	0.134
(U) Continue development of standards, models and procedures to support analytical metrology applications	0.132	0.085	0.090
(U) Total Cost	1.459	1.527	1.508



Exhibit R-2a, RDT&E Project Justification

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0702207F Depot Maintenance (Non-IF)

PROJECT NUMBER AND TITLE

3326 Precision Measurement & Calibration

(U) **C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	

(U) Not Applicable

0.000

(U) **D. Acquisition Strategy**

Primarily accomplish through intergovernmental transfer between the Department of Defense and other Federal Departments.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>07 Operational System Development</b>				<b>0702207F Depot Maintenance (Non-IF)</b>					<b>3326 Precision Measurement &amp; Calibration</b>			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2008 Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date	Cost to Complete	Total Cost	Target Value of Contract
(U) <u>Product Development</u>												
National Institute of Standards & Technology	MIPR (DD FORM 448)			1.153		1.365		1.351		Continuing	TBD	
Department of Energy	MIPR (DD FORM 448)			0.000		0.015				Continuing	TBD	
DoD Army	MIPR (DD FORM 448)			0.092		0.012				Continuing	TBD	
AFMC	In-House			0.029		0.030		0.032		Continuing	TBD	
AFMC (AEDC)	MIPR (DD448)			0.085		0.090		0.125			0.300	
Contract	RFP=SF33			0.100		0.015				Continuing	TBD	
Subtotal Product Development			0.000	1.459		1.527		1.508		Continuing	TBD	0.000
Remarks:												
(U) <u>Support</u>												
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			0.000	1.459		1.527		1.508		Continuing	TBD	0.000

**Exhibit R-4, RDT&E Schedule Profile**

DATE

**May 2009**

BUDGET ACTIVITY

**07 Operational System Development**

PE NUMBER AND TITLE

**0702207F Depot Maintenance (Non-IF)**

PROJECT NUMBER AND TITLE

**3326 Precision Measurement & Calibration**

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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>May 2009</b>
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BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0702207F Depot Maintenance (Non-IF)</b>	PROJECT NUMBER AND TITLE <b>3326 Precision Measurement &amp; Calibration</b>
---	---	---

(U) <b><u>Schedule Profile</u></b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) A schedule for Depot Maintenance PE is Not Applicable due to the nature of this project.			

**UNCLASSIFIED**

PE NUMBER: 0702976F

PE TITLE: Facilities Restoration & Modernization (Logistics)

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0702976F Facilities Restoration &amp; Modernization (Logistics)</b>
--	--

Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.000	44.778	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
5367 Alternative Energy	0.000	44.778	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

**(U) A. Mission Description and Budget Item Justification**

Alternative energy initiatives validate the operational use of alternative energy technologies for use at Air Force installations. The effort includes evaluating coal to liquid technology, wind, solar, hybrid wind diesel power production and geo-thermal ground source heat pumps. Federal law requires all federal agencies to increase the use of renewable. Annual goals for electricity generated with renewable increase every year beginning with FY07 with a final goal of 25% in 2025. This initiative provides alternative sources for electric power that decreases US dependence of foreign oil.

**(U) B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget			
(U) Current PBR/President's Budget	0.000	44.778	
(U) Total Adjustments	0.000	44.778	
(U) Congressional Program Reductions			
Congressional Rescissions			
Congressional Increases		44.778	
Reprogrammings			
SBIR/STTR Transfer			
(U) <u>Significant Program Changes:</u>			
FY09 Congressional Earmarks to research and develop alternative energy			

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>					PE NUMBER AND TITLE <b>0702976F Facilities Restoration &amp; Modernization (Logistics)</b>			PROJECT NUMBER AND TITLE <b>5367 Alternative Energy</b>		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5367 Alternative Energy	0.000	44.778	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) **A. Mission Description and Budget Item Justification**  
 Alternative energy initiatives validate the operational use of alternative energy technologies for use at Air Force installations. The effort includes evaluating coal to liquid technology, wind, solar, hybrid wind diesel power production and geo-thermal ground source heat pumps. Federal law requires all federal agencies to increase the use of renewable. Annual goals for electricity generated with renewable increase every year beginning with FY07 with a final goal of 25% in 2025. This initiative provides alternative sources for electric power that decreases US dependence of foreign oil.

(U) <b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Research and Develop Alternative Energy Initiatives		27.078	
(U) Research the Handling of CTL Bi-Products		5.000	
(U) Demonstrate the use of Solar Photovoltaic Arrays		4.800	
(U) Explore Renewable Energy Sources		5.000	
(U) Evaluate the Concept of Hybrid Wind Diesel		0.500	
(U) Investigate the use of Biomass Gasifier to generate Electrical Energy		2.400	
(U) Total Cost	0.000	44.778	0.000

(U) <b><u>C. Other Program Funding Summary (\$ in Millions)</u></b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) N/A										

(U) **D. Acquisition Strategy**  
 Office of Primary Responsibility (OPR) will determine contract vehicle.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE				
<b>07 Operational System Development</b>				<b>0702976F Facilities Restoration &amp; Modernization (Logistics)</b>				<b>5367 Alternative Energy</b>				
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
Research and Develop Alternative Energy						44.778	Apr-10				44.778	
Subtotal Product Development			0.000	0.000		44.778		0.000		0.000	44.778	0.000
Remarks:												
(U) <u>Support</u>											0.000	
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>											0.000	
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Management</u>											0.000	
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			0.000	0.000		44.778		0.000		0.000	44.778	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0702976F Facilities Restoration & Modernization (Logistics)

PROJECT NUMBER AND TITLE

5367 Alternative Energy

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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>May 2009</b>
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BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0702976F Facilities Restoration &amp; Modernization (Logistics)</b>	PROJECT NUMBER AND TITLE <b>5367 Alternative Energy</b>
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(U) <b><u>Schedule Profile</u></b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Research and Develop Alternative Energy		2-4Q	

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PE NUMBER: 0708011F  
 PE TITLE: Industrial Preparedness

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0708011F Industrial Preparedness</b>
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	48.987	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
2865 Manufacturing Technology	48.987	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

Note: In FY 2009 the AF Manufacturing Technology Program will transfer to PE 0603680F, Manufacturing Technologies from PE 0708011F, Industrial Preparedness, to focus on long-term manufacturing and processes and to better align with the Office of the Secretary of Defense ManTech PE.

**(U) A. Mission Description and Budget Item Justification**

This program is mandated by Section 2521, Title 10, United States Code, to create an affordable, world-class industrial base manufacturing capability responsive to the warfighter's needs. The Air Force ManTech major program tenets are: improvement of manufacturing processes and technologies; collaboration with government program offices, industry, and academia; investments in technologies beyond reasonable risk level for industry alone; cost-sharing; multiple system/customer applications; potential for significant return on investment; and customer commitment to implement. To this end, ManTech develops, demonstrates, and transitions advanced manufacturing processes and technologies to reduce costs, improve quality/capability, and shorten cycle times of weapon systems during design, development, production, and sustainment. ManTech projects include efforts that respond to government program office acquisition and sustainment requirements to reduce cost, schedule, cycle time, and risks during transition of technology. Where mature processes are not available, laboratory-developed initial process capabilities are matured and inserted into weapon system programs. ManTech objectives are conducted through partnership with all industry levels, from large prime contractors to small material and parts vendors. Program planning centers on the Aeronautical, Sustainment, Armament/Directed Energy, and Command/Control/Intelligence/Surveillance/Reconnaissance (C2ISR), and Space sectors of the industrial base. ManTech is in Budget Activity 7, Operational System Development, since it provides support for systems in design, production, and/or operational use. ManTech is part of the Industrial Preparedness Program Element supporting the Defense Planning Guidance and the Air Force Planning Guidance.

**(U) B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	38.387	0.000	
(U) Current PBR/President's Budget	48.987	0.000	
(U) Total Adjustments	10.600	0.000	
(U) Congressional Program Reductions			
Congressional Rescissions			
Congressional Increases	10.600		
Reprogrammings			
SBIR/STTR Transfer			

**(U) Significant Program Changes:**

Note: In FY 2008, Congress added \$10.6 million for: Technical Insertion Demonstration and Evaluation (TIDE) Program (\$1.2 million), High Temperature Laser Sintered

**Exhibit R-2, RDT&E Budget Item Justification**

DATE

**May 2009**

BUDGET ACTIVITY

**07 Operational System Development**

PE NUMBER AND TITLE

**0708011F Industrial Preparedness**

Polymeric Material Digital Product Definition (\$2.0 million), Laser Peening for Friction Stir Welded (FSW) Aerospace Structures (\$1.0 million), Prepreg Thickness Variability Reduction Program (\$1.6 million), Production of Nanocomposites for Aerospace Applications (\$1.6 million), Rapid Manufacturing and Repair of Composite Components (\$1.6 million), Reconfigurable Tooling Systems (\$1.6 million).

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>				<b>PE NUMBER AND TITLE</b> <b>0708011F Industrial Preparedness</b>				<b>PROJECT NUMBER AND TITLE</b> <b>2865 Manufacturing Technology</b>		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
2865 Manufacturing Technology	48.987	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

Note: In FY 2009 the program will transfer from PE 0708011F, Industrial Preparedness, to Budget Activity 3 in PE 0603680F, Manufacturing Technologies, to better align with the Office of the Secretary of Defense's ManTech PE.

**(U) A. Mission Description and Budget Item Justification**

This program is mandated by Section 2521, Title 10, United States Code, to create an affordable, world-class industrial base manufacturing capability responsive to the warfighter's needs. The Air Force ManTech major program tenets are: improvement of manufacturing processes and technologies; collaboration with government program offices, industry, and academia; investments in technologies beyond reasonable risk level for industry alone; cost-sharing; multiple system/customer applications; potential for significant return on investment; and customer commitment to implement. To this end, ManTech develops, demonstrates, and transitions advanced manufacturing processes and technologies to reduce costs, improve quality/capability, and shorten cycle times of weapon systems during design, development, production, and sustainment. ManTech projects include efforts that respond to government program office acquisition and sustainment requirements to reduce cost, schedule, cycle time, and risks during transition of technology. Where mature processes are not available, laboratory-developed initial process capabilities are matured and inserted into weapon system programs. ManTech objectives are conducted through partnership with all industry levels, from large prime contractors to small material and parts vendors. Program planning centers on the Aeronautical, Sustainment, Armament/Directed Energy, and Command/Control/Intelligence/Surveillance/Reconnaissance (C2ISR), and Space sectors of the industrial base. ManTech is in Budget Activity 7, Operational System Development, since it provides support for systems in design, production, and/or operational use. ManTech is part of the Industrial Preparedness Program Element supporting the Defense Planning Guidance and the Air Force Planning Guidance.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) MAJOR THRUST: Pursues affordable and efficient manufacturing investigations for critical, high quality, reliable structural, propulsion, stealth, and electronic components and assemblies required for existing and next generation aircraft.	4.241	0.000	0.000
(U) In FY 2008: Continued high value efforts to verify advantages of flexible manufacturing, commercial/military integration, quality processing, and supplier improvements. Continued development of manufacturing capabilities for more affordable low-observable structures. Developed manufacturing capabilities for advanced propulsion technologies. Continued rapid response productivity improvement efforts with selected high value programs. Conducted manufacturing readiness assessments on critical technologies in lab and acquisition programs to ensure affordable, producible technology transition.			
(U) MAJOR THRUST: Pursues cost-effective repair and manufacturing technologies for affordable sustainment components.	7.155	0.000	0.000
(U) In FY 2008: Continued cost-effective repair and manufacturing technologies for affordable sustainment of aircraft and turbine engine components. Continued ERLE technical effort to extend the life of critical, high value rotating			

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## Exhibit R-2a, RDT&amp;E Project Justification

DATE

May 2009

BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0708011F Industrial Preparedness	PROJECT NUMBER AND TITLE 2865 Manufacturing Technology		
(U) <b>B. Accomplishments/Planned Program (\$ in Millions)</b>		FY 2008	FY 2009	FY 2010
engine components, which have been in service and scheduled for retirement. Started assessments and manufacturing technology development to reduce costs and lead times for hi-value supply chain commodities. Continued rapid response productivity improvement efforts with selected high value programs.				
(U) MAJOR THRUST: Develops efficient and cost-effective manufacturing methods for high performance, high reliability components and materials for advanced tactical missiles, aircraft missile sensors, and directed energy systems.		3.149	0.000	0.000
(U) In FY 2008: Continued to pursue cost-effective manufacturing methods for high performance, reliable components for next generation munitions. Conducted manufacturing readiness assessments on critical technologies in lab and acquisition programs to ensure affordable, producible technology transition.				
(U) MAJOR THRUST: Addresses critical manufacturing issues for various Command, Control, Intelligence, Surveillance and Reconnaissance (C2ISR) and space platforms.		23.912	0.000	0.000
(U) In FY 2008: Continued efforts to address critical electronics manufacturing technologies for various C2ISR and space systems in order to improve affordability and producibility. Continued effort on AESA to enable improved manufacturing processes, for reduced costs and cycle times and greater production capacity. Continued efforts on Affordable Datalink components to enable improved manufacturing processes for reduced costs and cycle times and increased production throughput. Conducted manufacturing readiness assessments on critical technologies in lab and acquisition programs to ensure affordable, producible technology transition.				
(U) CONGRESSIONAL ADD: High Temperature, Laser Sintered Polymeric Material Digital Product		1.989	0.000	0.000
(U) In FY 2008: Conducted Congressionally-directed effort for High Temperature, Laser Sintered Polymeric Material Digital Product.				
(U) CONGRESSIONAL ADD: Prepreg Thickness Variability Reduction Program		1.589	0.000	0.000
(U) In FY 2008: Conducted Congressionally-directed effort for Prepreg Thickness Variability Reduction Program				
(U) CONGRESSIONAL ADD: Laser Peening for Friction Stir Welded (FW) Aerospace Structures		0.993	0.000	0.000
(U) In FY 2008: Conducted Congressionally-directed effort for Laser Peening for Friction Stir Welded (FSW) Aerospace Structures				
(U) CONGRESSIONAL ADD: Production of Nanocomposites for Aerospace Applications		1.589	0.000	0.000
(U) In FY 2008: Conducted Congressionally-directed effort for Production of nanocomposites for Aerospace Applications				
(U) CONGRESSIONAL ADD: Reconfigurable Tooling Systems		1.589	0.000	0.000
(U) FY 2008: Conducted Congressionally-directed effort for Reconfigurable Tooling Systems				
(U) CONGRESSIONAL ADD: Technical Insertion Demonstration and Evaluation (TIDE) Program.		1.192	0.000	0.000
(U) In FY 2008: Conducted Congressionally-directed effort for Technical Insertion Demonstration and Evaluation				

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Project 2865

Exhibit R-2a (PE 0708011F)

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**Exhibit R-2a, RDT&E Project Justification**

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**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0708011F Industrial Preparedness</b>	PROJECT NUMBER AND TITLE <b>2865 Manufacturing Technology</b>
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(U) <b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b> (TIDE) Program.	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) CONGRESSIONAL ADD: Rapid Manufacturing and Repair of Composites for High Temp Applications.	1.589	0.000	0.000
(U) In FY 2008: Conduct Congressionally-directed effort for Rapid Manufacturing and Repair of Composites for High Temp Applications.			
(U) Total Cost	48.987	0.000	0.000

(U) <b><u>C. Other Program Funding Summary (\$ in Millions)</u></b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	

(U) Not applicable.

(U) **D. Acquisition Strategy**  
Not applicable.

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**Exhibit R-3, RDT&E Project Cost Analysis**

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**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>07 Operational System Development</b>				<b>0708011F Industrial Preparedness</b>					<b>2865 Manufacturing Technology</b>			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
Anteon	Various									0.000	0.000	
Argonne	Various										0.000	
Bell											0.000	
Boeing	Various									0.000	0.000	
Booz-Allen											0.000	
Doyle Center for MTech, PA	Various										0.000	
GE	Coop Agmt									0.000	0.000	
H.N. Burns											0.000	
Harris											0.000	
Honeywell	Various									0.000	0.000	
Infoscrite	Various										0.000	
Killdeer Mountain Manufacturing Inc.											0.000	
L3 Communications											0.000	
Lockheed Martin	Various									0.000	0.000	
Luna Technologies											0.000	
NASA Glenn											0.000	
Northrop Grumman	Various									0.000	0.000	
Pratt & Whitney	Tech Int									0.000	0.000	
	Agr									0.000	0.000	
Raytheon	Coop Agmt									0.000	0.000	
Renaissance Service Inc.											0.000	
Rockwell											0.000	
Rolls Royce											0.000	
Surmet	Various										0.000	
Tiburon											0.000	
Univ Dayton Res Inst	Cost Plus									0.000	0.000	
US Technology	Various										0.000	
UTC	Various									0.000	0.000	
Wright Brothers Institute											0.000	
Wyle											0.000	
Various	Various			48.987						Continuing	TBD	
Subtotal Product Development			0.000	48.987		0.000		0.000		Continuing	TBD	0.000
Remarks:												
(U) <u>Support</u>												
In house support											0.000	
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
											0.000	

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Exhibit R-3 (PE 0708011F)

Project 2865



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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY		PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE		
<b>07 Operational System Development</b>		<b>0708011F Industrial Preparedness</b>				<b>2865 Manufacturing Technology</b>		
Subtotal Test & Evaluation	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Remarks:								
(U) <u>Management</u>							0.000	
Subtotal Management	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Remarks:								
(U)							0.000	
Subtotal	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Remarks:								
(U)							0.000	
Subtotal	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Remarks:								
(U) Total Cost	0.000	48.987	0.000	0.000	0.000	Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0708011F Industrial Preparedness

PROJECT NUMBER AND TITLE  
2865 Manufacturing Technology

# ManTech Schedule Summary

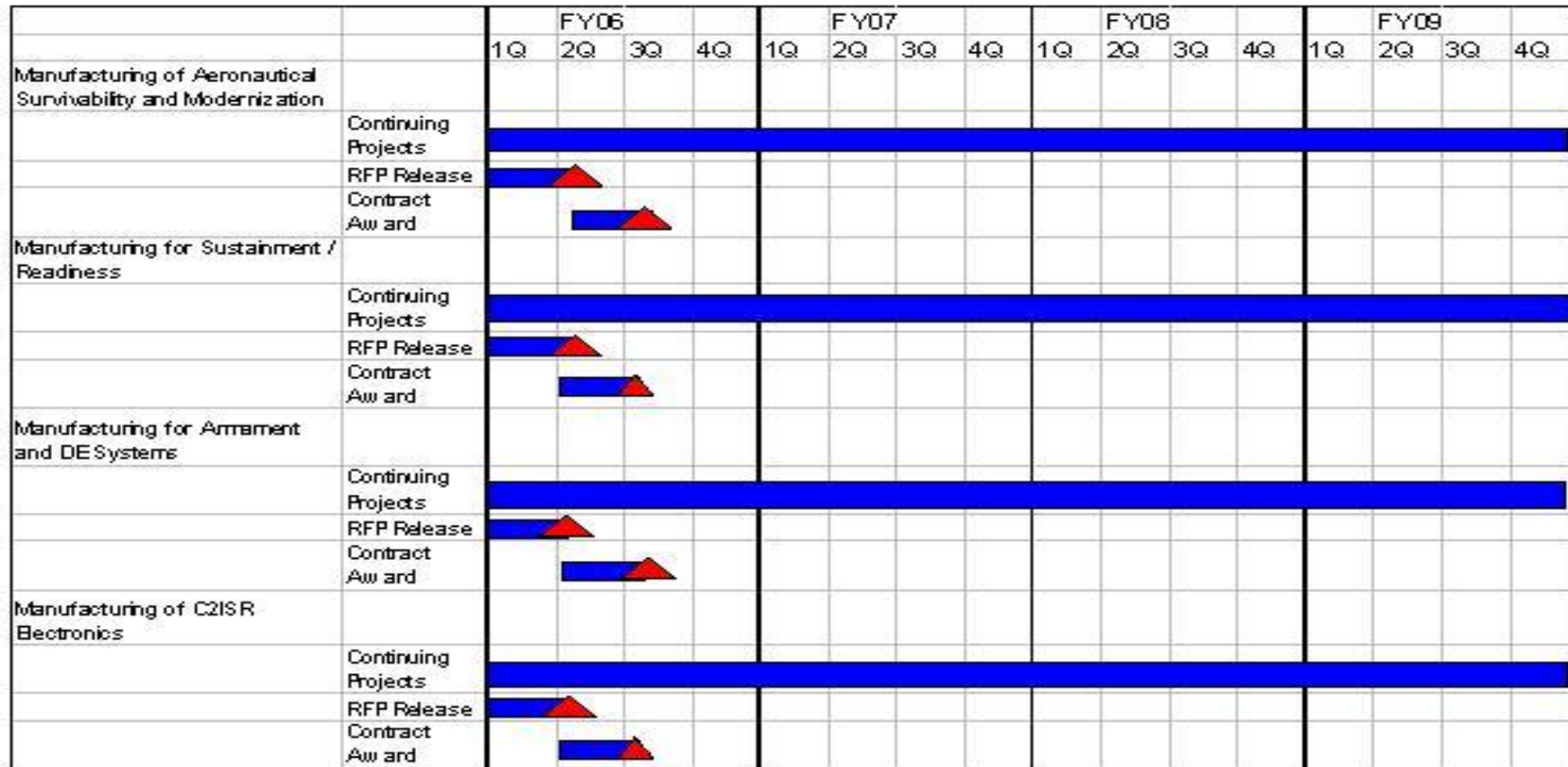


Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0708011F Industrial Preparedness</b>	PROJECT NUMBER AND TITLE <b>2865 Manufacturing Technology</b>
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(U) <u>Schedule Profile</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Manufacturing Technology for Aeronautical Survivability and Modernization.	1-4Q		
(U) Request for Proposal Release	2Q		
(U) Contract Awards	3Q		
(U) Manufacturing Technology for Sustainment / Readiness	1-4Q		
(U) Request for Proposal Release	1Q		
(U) Contract Awards	2Q		
(U) Manufacturing for Armament and Directed Energy Systems.	1-4Q		
(U) Request for Proposal Release	1Q		
(U) Contract Awards	2Q		
(U) Manufacturing for command, control, intelligence, surveillance, and reconnaissance (C2ISR)	1-4Q		
electronics			
(U) Request for Proposal Release	1Q		
(U) Contract Awards	2Q		

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PE NUMBER: 0708610F  
 PE TITLE: Logistics Information Technology (LOGIT)

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0708610F Logistics Information Technology (LOGIT)</b>
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	104.817	159.246	246.483	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5208 Expeditionary Combat Support System (ECSS)	104.817	159.246	246.483	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

**(U) A. Mission Description and Budget Item Justification**

ECSS will be composed of a Commercial-Off-The-Shelf (COTS) Enterprise Resource Planning (ERP) application and other potential COTS solutions replacing 240+ wholesale and retail legacy logistics and procurement Information Technology (IT) systems. Use of ERP/COTS products will provide the warfighter, and AF enterprise in general, with DoD and industry best business practices and capabilities, at all AF enterprise echelons in areas of product support & engineering, supply chain management, expeditionary logistics Command & Control, acquisition & procurement, maintenance, repair and overhaul. ECSS will be compliant with the Joint Technical Architecture (JTA) and Business Enterprise Architecture (BEA), will meet Chief Financial Officer (CFO) Act and Joint Financial Management Improvement Program (JFMIP) requirements, and will reside on the Global Combat Support System-Air Force (GCSS-AF) Integration Framework (IF). Activities also include studies and analysis to support both current program planning and execution and future program planning.

This program is in Budget Activity 7, Operational System Development because the program modernizes Automated Information Systems (AIS).

**(U) B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	114.599	189.679	40.561
(U) Current PBR/President's Budget	104.817	159.246	246.483
(U) Total Adjustments	-9.782	-30.433	
(U) Congressional Program Reductions		-30.000	
Congressional Rescissions		-0.433	
Congressional Increases			
Reprogrammings	-6.626		
SBIR/STTR Transfer	-3.156		

**(U) Significant Program Changes:**

- FY 2008 funding reduction of \$6.626M funds higher AF needs.
- FY 2009 funding reduced by Congress by \$30M due to program delay/unjustified growth
- FY 2010 increase due to full funding requirement for scheduled ECSS Milestone B.

Exhibit R-2a, RDT&E Project Justification

DATE  
May 2009

BUDGET ACTIVITY <b>07 Operational System Development</b>				PE NUMBER AND TITLE <b>0708610F Logistics Information Technology (LOGIT)</b>				PROJECT NUMBER AND TITLE <b>5208 Expeditionary Combat Support System (ECSS)</b>		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5208 Expeditionary Combat Support System (ECSS)	104.817	159.246	246.483	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) **A. Mission Description and Budget Item Justification**

ECSS will be composed of a Commercial-Off-The-Shelf (COTS) Enterprise Resource Planning (ERP) application and other potential COTS solutions replacing 240+ wholesale and retail legacy logistics and procurement Information Technology (IT) systems. Use of ERP/COTS products will provide the warfighter, and AF enterprise in general, with DoD and industry best business practices and capabilities, at all AF enterprise echelons in areas of product support & engineering, supply chain management, expeditionary logistics Command & Control, acquisition & procurement, maintenance, repair and overhaul. ECSS will be compliant with the Joint Technical Architecture (JTA) and Business Enterprise Architecture (BEA), will meet Chief Financial Officer (CFO) Act and Joint Financial Management Improvement Program (JFMIP) requirements, and will reside on the Global Combat Support System-Air Force (GCSS-AF) Integration Framework (IF). Activities also include studies and analysis to support both current program planning and execution and future program planning.

This program is in Budget Activity 7, Operational System Development because the program modernizes Automated Information Systems (AIS).

(U) **B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Continue ERP System Integration	103.658	159.246	246.483
(U) Expert Organizational Development System (Congressional Add)	1.159	0.000	0.000
(U) Total Cost	104.817	159.246	246.483

(U) **C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to Complete</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>		
(U) Other Procurement AF, ECSS (PE 0708610F)	10.493	24.143	44.463	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
(U) Operations & Maintenance AF, ECSS (PE 0708610F)	40.660	32.705	53.748	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

(U) **D. Acquisition Strategy**

The ECSS acquisition strategy is two fold. A COTS solution was awarded first, followed by the selection of a System Integrator. ECSS System was awarded using GSA schedule and/or Enterprise Software Agreement (ESA) and the Blanket Purchase Agreement (BPA) under the Enterprise Software Initiative (ESI).

The contract is awarded on a firm fixed price (FFP) basis. Under the provisions of the contract, funds are incrementally obligated up-front; however, the contractor

**Exhibit R-2a, RDT&E Project Justification**

DATE

**May 2009**

BUDGET ACTIVITY

**07 Operational System Development**

PE NUMBER AND TITLE

**0708610F Logistics Information  
Technology (LOGIT)**

PROJECT NUMBER AND TITLE

**5208 Expeditionary Combat Support  
System (ECSS)**

cannot invoice for payment until the performance based milestone events are achieved and accepted by the AF.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0708610F Logistics Information Technology (LOGIT)</b>	<b>PROJECT NUMBER AND TITLE</b> <b>5208 Expeditionary Combat Support System (ECSS)</b>
--	--	---

<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
<u>(U) Product Development</u> ERP/COTS System Integration	C/FFP	AFMC/754th ELSG/EC, Wright Patterson AFB, OH		53.752	Jan-08	95.840	Nov-08	162.538	Nov-09	Continuing	TBD	TBD
OEM Technical Support (COTS Product)	C/FFP	AFMC/754th ELSG/EC, Numerous Locations		6.371	May-08	2.180	May-09	4.281	May-10	Continuing	TBD	TBD
Expert Organizational Development System	C/FP	Triune Group, Braxton, WV		1.159	Jul-08	0.000		0.000		Continuing	TBD	TBD
Subtotal Product Development Remarks:			0.000	61.282		98.020		166.819		Continuing	TBD	TBD
<u>(U) Support Costs</u> Contractor Support	C/LOE Multiple Contracts	MCR, Jacobs, ETASS, Morgan Consulting, Wright Patterson AFB, OH		7.088	Dec-07	9.081	Dec-08	13.048	Dec-09	Continuing	TBD	TBD
Engineering Support	C/LOE	Oasis, Wright Patterson AFB, OH		3.961	Dec-07	5.615	Dec-08	4.493	Dec-09	Continuing	TBD	TBD
Subtotal Support Costs Remarks:			0.000	11.049		14.696		17.541		Continuing	TBD	TBD
<u>(U) Management Services</u> Program Office Operations	Allotment	AFMC/554th ELSG/EC, Wright Patterson AFB, OH		1.785	Oct-07	1.930	Oct-08	2.023	Oct-09	Continuing	TBD	TBD
FFRDC - MITRE Engineering Support	C/FFP	MITRE, Wright Patterson AFB, OH		2.337	Oct-07	3.468	Nov-08	1.725	Oct-09	Continuing	TBD	TBD
Subtotal Management Services Remarks:			0.000	4.122		5.398		3.748		Continuing	TBD	TBD

R-1 Line Item No. 232

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Project 5208

Exhibit R-3 (PE 0708610F)



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Exhibit R-3, RDT&E Project Cost Analysis										DATE May 2009		
BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0708610F Logistics Information Technology (LOGIT)				PROJECT NUMBER AND TITLE 5208 Expeditionary Combat Support System (ECSS)				
<u>Capabilities Integration Environment</u>												
(U)	<u>(Development &amp; Test)</u> Hardware/Software/Contractor Support	FFP/LOE Multiple contracts	643rd ELSS Maxwell AFB Gunter Annex, AL	3.976	Jan-08	4.890	Jan-09	5.393	Jan-10	Continuing	TBD	TBD
	Subtotal Capabilities Integration Environment (Development & Test)			0.000	3.976	4.890		5.393		Continuing	TBD	TBD
	Remarks:											
(U)	<u>Data ETL</u> Legacy Data	LOE Multiple contracts	AFMC/754th ELSG/EC, Numerous Locations	22.728	Mar-08	34.674	Jun-09	51.468	Jun-10	Continuing	TBD	TBD
	Subtotal Data ETL			0.000	22.728	34.674		51.468		Continuing	TBD	TBD
	Remarks:											
(U)	<u>Logistics Training Development</u> AETC Course Development	TBD	TBD	0.000		0.000	Nov-08	0.000	Jan-10	Continuing	TBD	TBD
	Subtotal Logistics Training Development			0.000	0.000	0.000		0.000		Continuing	TBD	TBD
	Remarks:											
<u>Global Combat Support System-Air Force</u>												
(U)	<u>(GCSS-AF)</u> Risk Reduction Activities	C/LOE	754th ELSG/GC Maxwell AFB - Gunter Annex - Lockheed Martin	0.300	Nov-07	0.000		0.000		Continuing	TBD	TBD
	Subtotal Global Combat Support System-Air Force (GCSS-AF)			0.000	0.300	0.000		0.000		Continuing	TBD	TBD
	Remarks:											
(U)	<u>Independent Verification &amp; Validation (IV&amp;V)</u> IV&V Support	C/FFP	GAITS	1.360	Aug-08	1.568	Jun-09	1.514	Jan-10	Continuing	TBD	TBD
	Subtotal Independent Verification & Validation (IV&V)			0.000	1.360	1.568		1.514		Continuing	TBD	TBD
	Remarks:											
(U)	Total Cost			0.000	104.817	159.246		246.483		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

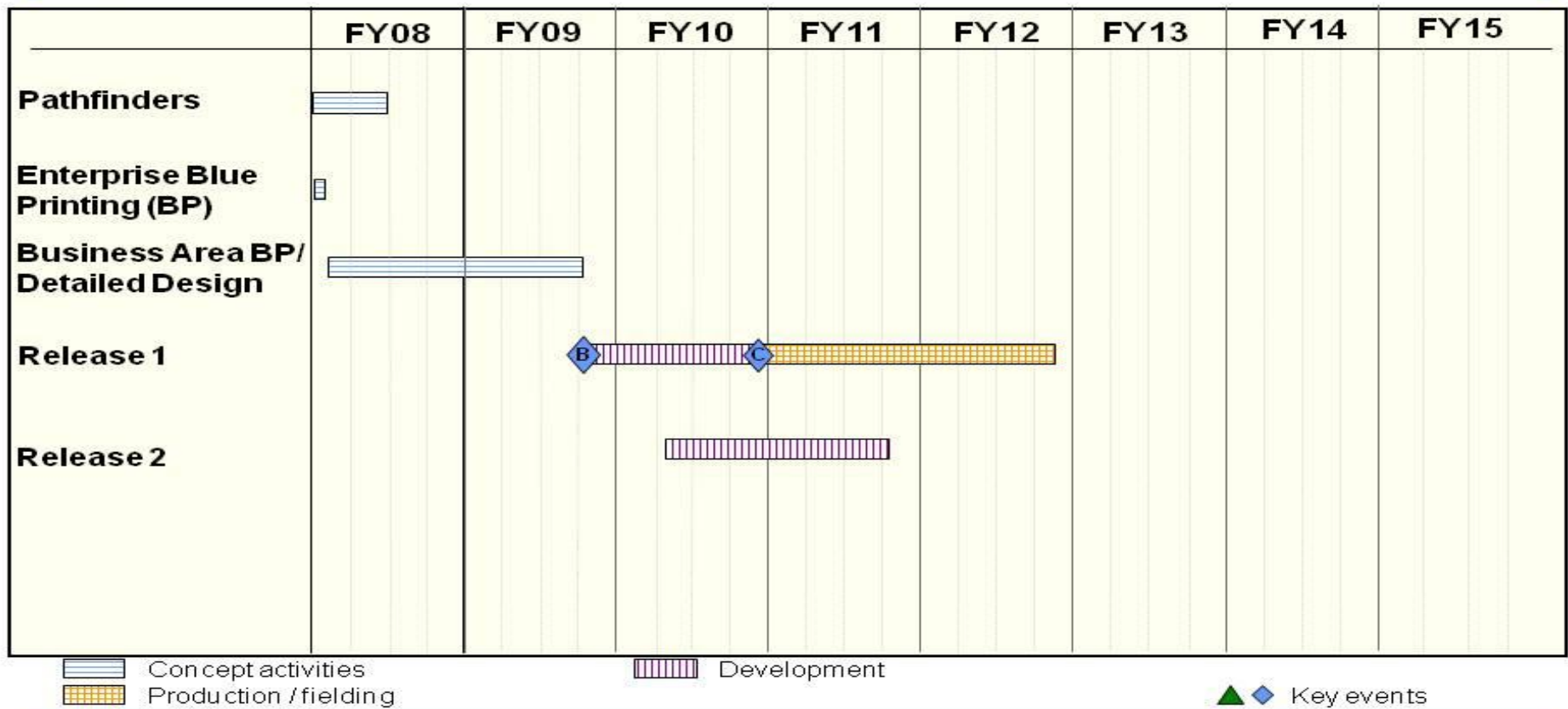
BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0708610F Logistics Information  
Technology (LOGIT)

PROJECT NUMBER AND TITLE  
5208 Expeditionary Combat Support  
System (ECSS)



# ECSS Program Schedule



PB10 R-Docs

As of 22 Dec 08

R-1 Line Item No. 232

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Project 5208

Exhibit R-4 (PE 0708610F)

Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0708610F Logistics Information  
Technology (LOGIT)

PROJECT NUMBER AND TITLE

5208 Expeditionary Combat Support  
System (ECSS)

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) <u>Schedule Profile</u>			
(U) Pathfinders	1-2Q		
(U) Enterprise Blueprinting	1Q		
(U) Business Area Blueprinting	1-4Q	1-3Q	
(U) Milestone B		4Q	
(U) Milestone C			4Q
(U) Release 1		4Q	1-4Q
(U) Release 2			2-4Q

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PE NUMBER: 0708611F  
 PE TITLE: Support Systems Development

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0708611F Support Systems Development</b>
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	32.927	15.820	6.288	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
3318 Product Data Systems Modernization (PDSM)	1.793	0.494	0.578	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5042 Log Application Logisitics Integration (LALI)	31.134	15.326	5.710	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

(U) **A. Mission Description and Budget Item Justification**  
 This program element supports two separate programs. PDSM (project 3318) upgrades Air Force digital data standards to commercial industry standards supporting the Joint Computer-Aided Acquisition Logistic Support (JCALS) System. LALI, (project 5042), is the effort to migrate existing Installations and Logistics (IL) legacy systems to the common GCSS-AF Integration Framework (IF).

This program is a Budget Activity 7, Operational System Development, because projects are being engineered to support already operational weapon systems.

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	33.859	8.145	8.294
(U) Current PBR/President's Budget	32.927	15.820	6.288
(U) Total Adjustments	-0.932	7.675	
(U) Congressional Program Reductions		-0.042	
Congressional Rescissions		-0.043	
Congressional Increases		7.760	
Reprogrammings			
SBIR/STTR Transfer	-0.932		

(U) **Significant Program Changes:**  
 In FY2009, Congress added \$38.8M to PE 78611F for tasks that were placed in project 5042 but were for non LALI activities. \$31.04M of these funds were moved out of PE 78611F via technical adjustment; \$29.6M was moved to PE 72976F and \$1.44M was moved to PE 33141F. The tasks moved to PE 72976F include: Expeditionary 200 kW+ Alternative Power Generator (\$.8M), Alternative Energy Fuel Cell Power (\$1.6), Assessment of Alternative Energy for Aircraft Ground Equipment (\$1.6), Eielson AFB Alternative Energy Source Program (\$2.4), Freedom Fuels/Coal Fuels Alliance (\$3.2), and Alternative Energy Research (\$20M). The task moved to PE 33141F is Technical Order Modernization Environment (\$1.44M). The remaining \$7.76M of these funds will be executed out of PE 78611F Project 5042. These tasks include: WR-ALC Strategic Airlift Aircraft Availablilty Improvement (\$3.360M), Micro-Grid Energy Storage Utilizing a Deployable Zinc-Bromide Flow Battery (\$1.6M), Accelerator-Driven Non-Destructive Testing (\$2M), and Warner Robbins Air Logistics Center Special Operations Forces (\$0.8M). The AF will direct these funds to the correct program office for execution.

Exhibit R-2, RDT&E Budget Item Justification

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0708611F Support Systems Development

FY2010 reductions fund higher AF priorities.

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>					PE NUMBER AND TITLE <b>0708611F Support Systems Development</b>			PROJECT NUMBER AND TITLE <b>3318 Product Data Systems Modernization (PDSM)</b>		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
3318 Product Data Systems Modernization (PDSM)	1.793	0.494	0.578	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

This project implements the Air Force Technical Order (TO) functionality. The Enhanced Technical Information Management System (ETIMS) Enterprise is an integration of custom developed software with new and existing applications/components of Electronic Technical Order Viewer, Joint Computer-aided Acquisition and Logistics Support (JCALS), and Document Automation & Production Service (DAPS) On-Demand printing and distribution service. It will provide user friendly, technically accurate, and up-to-date digital technical data at the point of use that is acquired, sustained, distributed and available in digital format from a single point of access for all technical data users. ETIMS will develop new software and integrate existing TO databases. Activities also include studies and analysis to support both current program planning and execution and future program planning.

This program is in Budget Activity 7, Operational System Development, because projects are being engineered to support operational weapon systems already in existence.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Accomplishments/Planned Program			
(U) Continue Management and support of AF technical data activities	1.226	0.144	0.168
(U) Continue Technical Data Integrator/Developer Support	0.356	0.284	0.330
(U) Continue Systems Program Office (SPO) Operations	0.211	0.066	0.080
(U) Total Cost	1.793	0.494	0.578

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Not Applicable										

**(U) D. Acquisition Strategy**

ETIMS will incrementally develop enhancements to the existing project to ensure a user friendly, technically accurate, and current digital TO management solution at the point of use. The acquisition will be a Cost Plus-Fixed Fee (CPFF) contract line item on a competitively awarded contract utilizing Full and Open Competition (FAR Part 15).

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE				
<b>07 Operational System Development</b>				<b>0708611F Support Systems Development</b>					<b>3318 Product Data Systems Modernization (PDSM)</b>				
<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>	
(U) <u>Support</u> Manage and Support Technical Data activities	C/FP	NGIT, 754 ELSG/ILMT, Wright Patterson AFB, OH	0.000	1.226	Oct-07	0.144	Feb-09	0.168	Feb-10	Continuing	TBD	TBD	
Technical Data Integrator/Developer Support	C/CPFF	SAIC, 754 ELSG/ILMT, Wright Patterson AFB, OH	0.000	0.356	Oct-07	0.284	Feb-09	0.330	Feb-10	Continuing	TBD	TBD	
Subtotal Support Remarks:			0.000	1.582		0.428		0.498		Continuing	TBD	TBD	
(U) <u>Management</u> System Program Office (SPO) Operations	C/FP	OASIS, 754 ELSG/ILMT, Wright Patterson AFB, OH	0.000	0.211	Jan-08	0.066		0.080		Continuing	TBD	TBD	
Subtotal Management Remarks:			0.000	0.211		0.066		0.080		Continuing	TBD	TBD	
(U) Total Cost			0.000	1.793		0.494		0.578		Continuing	TBD	TBD	



Exhibit R-4, RDT&E Schedule Profile

DATE  
May 2009

BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0708611F Support Systems  
Development

PROJECT NUMBER AND TITLE  
3318 Product Data Systems  
Modernization (PDSM)



# Enhanced Technical Information Management System (ETIMS) Schedule

	FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY15
<b>ETIMS</b>								

Production / fielding    
  Design / development    
  Integration / test    
  FRR – Field Readiness Review for Enhancement Releases  
 Pre-Production    
  Key events

**PB10 R-Docs**

Depicted by installation/production flow

As of 23 Apr 09

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**Exhibit R-4a, RDT&E Schedule Detail**

DATE

**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0708611F Support Systems Development</b>	PROJECT NUMBER AND TITLE <b>3318 Product Data Systems Modernization (PDSM)</b>
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(U) <u>Schedule Profile</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Design/Development		3-4Q	2-3Q
(U) Integration/Test	1Q	4Q	3Q
(U) Pre-Production	1-2Q		1-4Q
(U) Production/Fielding	2-4Q	1-2Q	2,4Q

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

<b>BUDGET ACTIVITY</b> 07 Operational System Development				<b>PE NUMBER AND TITLE</b> 0708611F Support Systems Development				<b>PROJECT NUMBER AND TITLE</b> 5042 Log Application Logistics Integration (LALI)		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5042 Log Application Logistics Integration (LALI)	31.134	15.326	5.710	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

Log Application Logistics Integration is the effort to migrate existing Logistics Installations and Mission Support (LIMS) legacy systems to the common Global Combat Support System - Air Force Data Services (GCSS-AFDS) Integration Framework and provide integration support to assist this effort. The target is a suite of components that are continuously updated or refined to embrace emerging best practices and commercial information technology innovations. The strategic plan is the creation of a logistics enterprise system using common software and hardware products requiring a smaller number of interfacing transactions.

LALI integration funding will also provide data discovery and data migration in support of the Expeditionary Combat Support System (ECSS) and provide the ability to keep corporate aggregated data available to senior decision makers during ECSS deployment by base. Activities also include studies and analysis to support both current program planning and execution and future program planning.

Activities in this Project also include FY2008 and FY2009 Congressional Adds for non LALI work. The AF has directed these funds to the correct program office for execution.

This program is in Budget Activity 7, Operational System Development, because projects are being engineered to support operational weapons systems already in existence.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Accomplishments/Planned Program			
(U) Continue LALI Program Management Office (PMO) Support	0.095	0.096	0.072
(U) Continue LALI PMO Tasks (Supporting Integration and Development)	1.699	1.705	1.338
(U) Provide LALI Systems Engineering Base Support & Test Development Range	0.052	0.053	0.000
(U) Continue LALI Systems Engineering Contractor Support (Product Development)	5.332	5.578	1.929
(U) Continue LALI Integration Task Contracts	0.131	0.134	0.129
(U) LALI Service Oriented Architecture (SOA) Support	0.000	0.000	1.121
(U) LALI Community of Interest (COI) Support	0.000	0.000	1.121
(U) Heavy Duty Hybrid Electric Vehicle Congressional Add	1.933	0.000	0.000
(U) Alternative Energy Fuel Cell Power Generation Congressional Add	1.933	0.000	0.000
(U) Strategic Airlift Aircraft Availability Improvements Congressional Add	2.705	0.000	0.000
(U) Alternate Carbon Stationary Fuel Cell Demonstrator Congressional Add	3.092	0.000	0.000

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0708611F Support Systems Development</b>	<b>PROJECT NUMBER AND TITLE</b> <b>5042 Log Application Logistics Integration (LALI)</b>
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<b>(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) WR-ALC Special Operations Forces Congressional Add	2.899	0.000	0.000
(U) Alternative Energy Research Congressional Add	9.663	0.000	0.000
(U) WR-ALC Strategic Airlift Aircraft Availabilitly Improvement Congressional Add	0.000	3.360	0.000
(U) Engineering Training and Knowledge Preservation System Congresionnal Add	1.600	0.000	0.000
(U) Accelerator-Driven non-Destructive Testing Congressional Add	0.000	2.000	0.000
(U) Warner Robbins Air Logistics Center Special Operations Forces Congressional Add	0.000	0.800	0.000
(U) Micro-Grid Energy Storage Utilizing a Deployable Zinc-Bromide Flow Battery Congressional Add	0.000	1.600	0.000
(U) Total Cost	31.134	15.326	5.710

<b>(U) <u>C. Other Program Funding Summary (\$ in Millions)</u></b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	

(U) Not Applicable

**(U) D. Acquisition Strategy**

The Engineering & Integration Architecture (EIPA) Flight of the 643rd Electronic Systems Squadron (ELSS) manages the logistics systems engineering and integration issues for the Air Force. EIPA performs a set of activities required by the 754th GCSS-AF to deliver world-class capabilities to our customers. This includes enterprise architecture, engineering technical and functional support of services for the development, integration, installation of modernized Logistics Information Systems, maintenance, and deactivation of redundant systems. The focus is on facilitating the improvement of the systems efficiency through integration and technology insertion and exploiting GCSS-AF provided data services and business intelligence as we move to Service Oriented Architecture (SOA) based exposure of data.

UNCLASSIFIED

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0708611F Support Systems Development</b>	<b>PROJECT NUMBER AND TITLE</b> <b>5042 Log Application Logistics Integration (LALI)</b>
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(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> LALI Support Contractor (Portfolio Management, Architecture, & Data Management)	C/FP	AF/A4/7 BPA (TAG), Bolling AFB, Washington, D.C.		0.791	Mar-08	0.959	Mar-09	0.072	Mar-10	Continuing	TBD	TBD
LALI Support Contractor (Data Management, Enterprise Architecture, & System Modernization support)	C/FP	AF/A4/7 BPA (TAG), Bolling AFB, Washington, D.C.		1.335	Mar-08	1.358	Mar-09	1.017	Mar-10	Continuing	TBD	TBD
LALI Support Contractor (Data Migration/Warehousing )	MIPR	GCSS-AFDS WPAFB, OH		2.119	Aug-08	2.155	Aug-09	0.000		Continuing	TBD	TBD
LALI Support Contractor (Data Management)	C/FP	GCSS-AFDS WPAFB, OH		1.087	Jan-08	1.106	Jan-09	0.840	Jan-10	Continuing	TBD	TBD
LALI Service Oriented Architecture (SOA) Support	TBD	AF/A4/7 BPA (TAG), Bolling AFB, Washington, D.C.		0.000		0.000		1.121	Mar-10	Continuing	TBD	TBD
LIMS Community of Interest (COI) Support	TBD	AF/A4/7 BPA (TAG), Bolling AFB, Washington, D.C.		0.000		0.000		1.121	Mar-10	Continuing	TBD	TBD
Alternative Energy Fuel Cell Power Generation Congressional Add	C/CPFF	Battelle Corp, Columbus, OH		1.933	Sep-08	0.000		0.000		Continuing	TBD	TBD
Strategic Airlift Aircraft Availability Improvements Congressional Add	SS/FP	Intergraph Corp, Robins AFB, GA		2.705	Jun-08	0.000		0.000		Continuing	TBD	TBD
Heavy Duty Hybride Electric Vehicle Congressional Add	C/CPFF	Volvo Powertrain (Mack Truck), Hagerstown, MD		1.933	Aug-08	0.000		0.000		Continuing	TBD	TBD
Alternate Carbon Stationary Fuel Cell Demonstrator Congressional Add	C/CPFF	Fuel Cell Energy, Danbury, CT		3.092	Dec-08	0.000		0.000		Continuing	TBD	TBD
WR-ALC Special Operations Forces	Various	Multiple		2.899		0.000		0.000		Continuing	TBD	TBD

R-1 Line Item No. 233

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Project 5042

Exhibit R-3 (PE 0708611F)

**UNCLASSIFIED**

Exhibit R-3, RDT&E Project Cost Analysis								DATE <b>May 2009</b>				
BUDGET ACTIVITY <b>07 Operational System Development</b>				PE NUMBER AND TITLE <b>0708611F Support Systems Development</b>				PROJECT NUMBER AND TITLE <b>5042 Log Application Logistics Integration (LALI)</b>				
Congressional Add												
Alternative Energy Research Congressional Add	Various	Multiple		9.663		0.000		0.000		Continuing	TBD	TBD
Engineering Training and Knowledge Preservation System Congressional Add	CC/FFP	University of Dayton Research Institute, Dayton, OH		1.600	Dec-08	0.000		0.000		Continuing	TBD	TBD
WR-ALC Strategic Airlift Aircraft Availability Improvement Congressional Add	TBD	TBD		0.000		3.360	Jul-08	0.000		Continuing	TBD	TBD
Accelerator-Driven Non-Destructive Testing Congressional Add	TBD	TBD		0.000		2.000	Jul-08	0.000		Continuing	TBD	TBD
Warner Robbins Air logistics Center Special Operations Forces Congressional Add	TBD	TBD		0.000		0.800	Jul-08	0.000		Continuing	TBD	TBD
Micro-Grid Energy Storage Utilizing a Deployable Zinc-Bromide Flow Battery Congressional Add	TBD	TBD		0.000		1.600	Jul-08	0.000		Continuing	TBD	TBD
Subtotal Product Development			0.000	29.157		13.338		4.171		Continuing	TBD	TBD
Remarks:												
(U) <u>Support</u>												
PMO Tasks (supporting Integration & Development)	C/FP	AF/A4/7 BPA (TAG), Bolling AFB, Washington, D.C.		1.699	Jan-08	1.705	Jan-09	1.338	Jan-10	Continuing	TBD	TBD
Portal/Systems Engineering Support (Integration Task)	C/FP	GCSS-AFDS WPAFB, OH		0.131	Feb-08	0.134	Feb-09	0.129	Feb-10	Continuing	TBD	TBD
Subtotal Support			0.000	1.830		1.839		1.467		Continuing	TBD	TBD
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
Support Contractor (Test Development Range)	C/FP	GCSS-AFDS WPAFB, OH		0.052	Jan-08	0.053	Jan-09	0.000		Continuing	TBD	TBD
Subtotal Test & Evaluation			0.000	0.052		0.053		0.000		Continuing	TBD	TBD
Remarks:												
(U) <u>Management</u>												
PMO Support (System Program Office management and operations)	N/A	AF/A4/7 BPA (TAG), Bolling AFB, Washington, D.C.		0.095	Dec-07	0.096	Dec-08	0.072	Dec-09	Continuing	TBD	TBD
Subtotal Management			0.000	0.095		0.096		0.072		Continuing	TBD	TBD
Remarks:												
(U) Total Cost			0.000	31.134		15.326		5.710		Continuing	TBD	TBD

R-1 Line Item No. 233

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Project 5042

Exhibit R-3 (PE 0708611F)

Exhibit R-4, RDT&E Schedule Profile

DATE  
May 2009

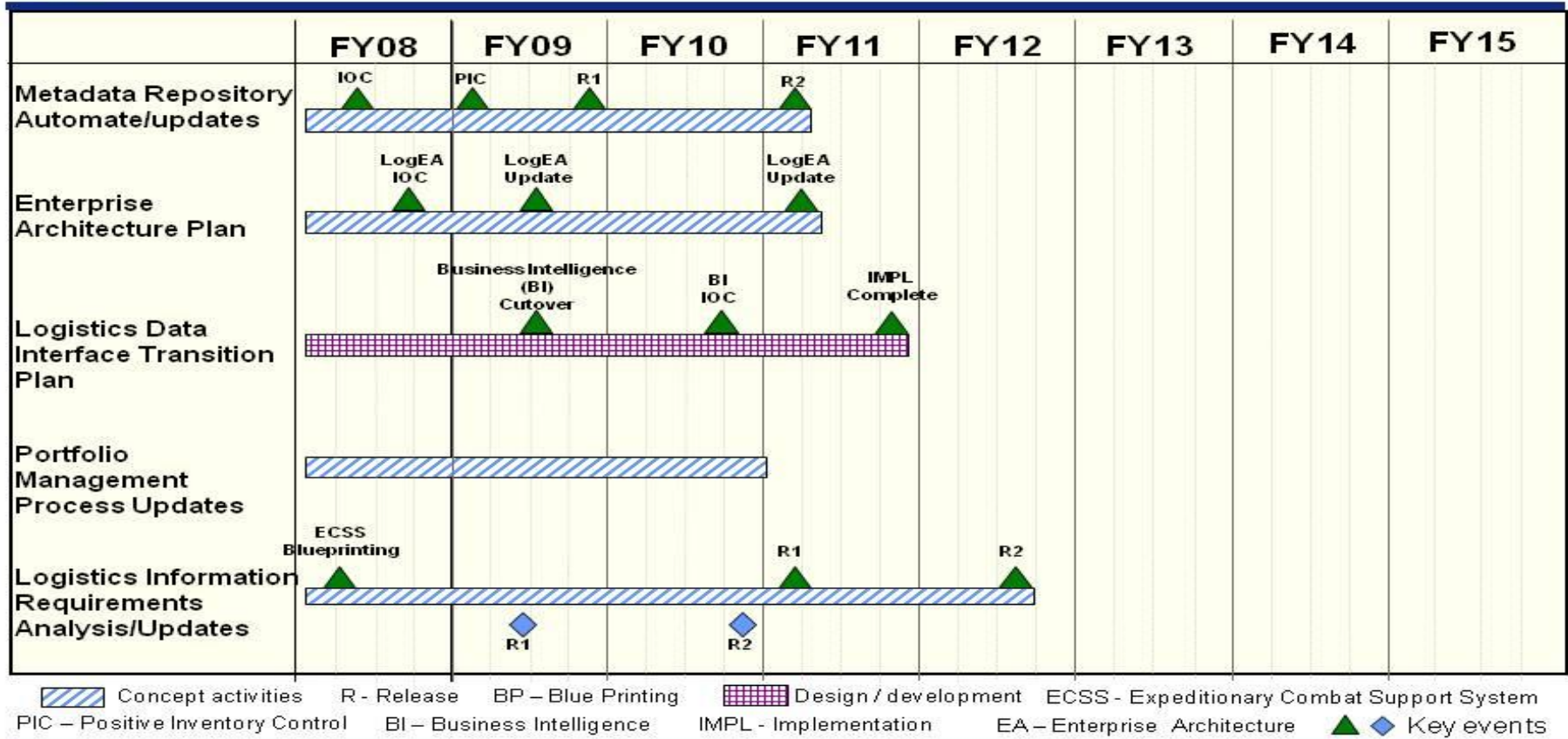
BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0708611F Support Systems Development

PROJECT NUMBER AND TITLE  
5042 Log Application Logistics Integration (LALI)



## Log Application Logistics Integration (LALI) Schedule



PB10 R-Docs

As of 22 April 09

Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0708611F Support Systems Development</b>	PROJECT NUMBER AND TITLE <b>5042 Log Application Logistics Integration (LALI)</b>
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(U) <u>Schedule Profile</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Metadata Repository (Automate/Updates)	1-4Q	1-4Q	1-4Q
(U) Enterprise Architecture Plan	1-4Q	1-4Q	1-4Q
(U) Logistics Data Interface Transition Plan	1-4Q	1-4Q	1-4Q
(U) Portfolio Management Process Updates	1-4Q	1-4Q	1-4Q
(U) Logistics Information Requirements Analysis/Updates	1-4Q	1-4Q	1-4Q



**UNCLASSIFIED**

PE NUMBER: 0804743F  
 PE TITLE: OTHER FLIGHT TRAINING

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0804743F OTHER FLIGHT TRAINING</b>
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.000	0.000	0.805	0.000	0.000	0.000	0.000	0.000	0.000	0.000
5303 ADSS Development	0.000	0.000	0.805	0.000	0.000	0.000	0.000	0.000	0.000	0.000

**(U) A. Mission Description and Budget Item Justification**

Program supports the Air Education and Training command (AETC) Decision Support System (ADSS) which is an automated information system that provides AETC leadership and staff with key management information about training production status, including monitoring and assessment of training. The data and reports from ADSS provide the vital feedback mechanism essential to an effective programming and management process. The hardware and software components of ADSS interact and communicate via the DOD standard communications infrastructure. The system uses DOD information transfer assets that provide seamless communications within and across systems and media.

Recent changes in funding use laws requires compliance with the NDAA and resulting AFI 65-601 allocation/use of development funds. ADSS development funds must now use 3600 funds vice previously used 3400 funds. New law does not allow use of 3400 funds for RDT&E actions. Per direction in the memorandum from SAF/FMBM dated 15 Aug 07, and IAW DoD FRM Vol 2A, 010212 B1, all developmental activities involved in bringing a program to its system objective are to be funded in RDT&E.

This program is Budget Activity 7 - Operational System Development.

**(U) B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget			0.818
(U) Current PBR/President's Budget	0.000	0.000	0.805
(U) Total Adjustments	0.000	0.000	
(U) Congressional Program Reductions			
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer			
(U) <u>Significant Program Changes:</u>			

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>					PE NUMBER AND TITLE <b>0804743F OTHER FLIGHT TRAINING</b>			PROJECT NUMBER AND TITLE <b>5303 ADSS Development</b>		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5303 ADSS Development	0.000	0.000	0.805	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

Program supports the Air Education and Training command (AETC) Decision Support System (ADSS) which is an automated information system that provides AETC leadership and staff with key management information about training production status, including monitoring and assessment of training. The data and reports from ADSS provide the vital feedback mechanism essential to an effective programming and management process. The hardware and software components of ADSS interact and communicate via the DOD standard communications infrastructure. The system uses DOD information transfer assets that provide seamless communications within and across systems and media.

Recent changes in funding use laws requires compliance with the NDAA and resulting AFI 65-601 allocation/use of development funds. ADSS development funds must now use 3600 funds vice previously used 3400 funds. New law does not allow use of 3400 funds for RDT&E actions. Per direction in the memorandum from SAF/FMBM dated 15 Aug 07, and IAW DoD FRM Vol 2A, 010212 B1, all developmental activities involved in bringing a program to its system objective are to be funded in RDT&E.

This program is Budget Activity 7 - Operational System Development.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Development of AETC Decision Support System (ADSS)			0.805
(U)			
(U)			
(U) Total Cost	0.000	0.000	0.805

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) None.										

**(U) D. Acquisition Strategy**

Contract will be awarded with full and open competition.

UNCLASSIFIED

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>07 Operational System Development</b>				<b>0804743F OTHER FLIGHT TRAINING</b>					<b>5303 ADSS Development</b>			
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> Developmental Efforts for AETC ADSS Subtotal Product Development Remarks:	Various	TBD	0.000	0.000		0.000		0.805 0.805		Continuing Continuing	TBD TBD	TBD TBD
(U) <u>Support</u>  Subtotal Support Remarks:			0.000	0.000		0.000		0.000		0.000	0.000	0.000
(U) <u>Test &amp; Evaluation</u>  Subtotal Test & Evaluation Remarks:			0.000	0.000		0.000		0.000		0.000	0.000	0.000
(U) <u>Management</u>  Subtotal Management Remarks:			0.000	0.000		0.000		0.000		0.000	0.000	0.000
(U) Total Cost			0.000	0.000		0.000		0.805		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0804743F OTHER FLIGHT TRAINING

PROJECT NUMBER AND TITLE

5303 ADSS Development

# ADSS DEVELOPMENT



Development of AETC Decision Support System

<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>May 2009</b>
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BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0804743F OTHER FLIGHT TRAINING</b>	PROJECT NUMBER AND TITLE <b>5303 ADSS Development</b>
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(U) <b><u>Schedule Profile</u></b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Development of AETC Decision Support System (ADSS)			1-4Q

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**UNCLASSIFIED**

PE NUMBER: 0804757F  
 PE TITLE: JOINT NATIONAL TRAINING CENTER

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0804757F JOINT NATIONAL TRAINING CENTER</b>
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	3.021	3.205	3.220	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5124 Training Transformation	3.021	3.205	3.220	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

**(U) A. Mission Description and Budget Item Justification**

Supports the SECDEF's Transformation in Training/Joint National Training Capability (JNTC). Develops capabilities that integrate live, virtual, and constructive elements into a seamless joint training environment. Using a scientific and phased approach, researches new technologies and methods that provide a crucial technology-based foundation supporting all JNTC operations.

This program is in Budget Activity 7- Operational Systems Development because it supports rapid transformation of Department of Defense training into a Joint National Training Capability.

**(U) B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	3.128	3.214	3.220
(U) Current PBR/President's Budget	3.021	3.205	3.220
(U) Total Adjustments	-0.107	-0.009	
(U) Congressional Program Reductions			
Congressional Rescissions	-0.020	-0.009	
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer	-0.087		
(U) <u>Significant Program Changes:</u>			
FY08			
- Decreased by Congressional General Reductions			
- Decreased by SBIR Transfer			
FY09			
- Decreased by Congressional General Reductions			

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>					PE NUMBER AND TITLE <b>0804757F JOINT NATIONAL TRAINING CENTER</b>			PROJECT NUMBER AND TITLE <b>5124 Training Transformation</b>		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5124 Training Transformation	3.021	3.205	3.220	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

Supports the SECDEF's Transformation in Training/Joint National Training Capability (JNTC). Develops capabilities that integrate live, virtual, and constructive elements into a seamless joint training environment. Using a scientific and phased approach, researches new technologies and methods that provide a crucial technology-based foundation supporting all JNTC operations.

This program is in Budget Activity 7- Operational Systems Development because it supports rapid transformation of Department of Defense training into a Joint National Training Capability.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Continue Air Force Modeling and Simulations Tool Kit (AFMSTT) Air Warfare Simulation (AWSIM) Upgrades	1.000	1.034	1.565
(U) Continue basic operations support, systems acquisition, engineering and development studies/efforts	0.796	0.974	0.557
(U) Begin/Continue Multi-level security (Radiant Mercury) for Distributed Mission Operations Center (DMOC)	0.200	0.197	0.000
(U) Begin/Continue Concept of Operations for Space DMOC into JNTC Live -Virtual-Constructive events	1.025	1.000	1.098
(U) Total Cost	3.021	3.205	3.220

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) PE 0804757, Joint National Training Center, APAF	0.057	2.442	2.772						Continuing	TBD
(U) PE 0804757, Joint National Training Center, OPAF	12.723	18.711	4.238						Continuing	TBD

**(U) D. Acquisition Strategy**

The acquisition strategy is competitive, with cost plus fixed fee and firm fixed price contracts.



UNCLASSIFIED

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0804757F JOINT NATIONAL TRAINING CENTER</b>	<b>PROJECT NUMBER AND TITLE</b> <b>5124 Training Transformation</b>
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<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
<u>(U) Product Development</u> AFMSTT		L3, Mesa , AZ Northrop Grumman, McLean, VA	2.918	1.000	Jan-08	1.034	Jan-09	1.565	Jan-10	Continuing	TBD	
DMOC-S		SPARTA, Schriever AFB, CO	1.958	1.025	Jan-08	1.000	Jan-09			Continuing	TBD	
Ops Support, System Acq, Engineering & Development Studies DMOC (DTNG)		Various  Lockheed Martin Corp, Kirtland AFB, NM	1.953	0.796		0.974		0.557		Continuing	TBD	
Subtotal Product Development Remarks:			7.462	3.021		3.205		3.220		Continuing	TBD	0.000
<u>(U) Support</u> AFMSTT		Northrop Grumman, McLean, VA	0.244							Continuing	TBD	
DMOC-S		Northrop Grumman, McLean, VA									0.000	
Subtotal Support Remarks:			0.244	0.000		0.000		0.000		Continuing	TBD	0.000
<u>(U) Test &amp; Evaluation</u>											0.000	
Subtotal Test & Evaluation Remarks:			0.000	0.000		0.000		0.000		0.000	0.000	0.000
<u>(U) Management</u>											0.000	
Subtotal Management Remarks:			0.000	0.000		0.000		0.000		0.000	0.000	0.000
<u>(U) Total Cost</u>			7.706	3.021		3.205		3.220		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE  
**May 2009**

BUDGET ACTIVITY  
**07 Operational System Development**

PE NUMBER AND TITLE  
**0804757F JOINT NATIONAL TRAINING CENTER**

PROJECT NUMBER AND TITLE  
**5124 Training Transformation**



# JNTC Schedule

	FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY15
Air Force Modeling and Simulation Training Toolkit (AFMSTT)	Design /Development			Design /Development				
Basic Operating Support System Acquisition Support, Engineering Support	Design /Development			Design /Development				
Multiple-Level Security (MLS)	Design /Development							
Space Distributed Mission Operations Center	Design /Development							

- Concept activities
- Production / fielding
- Design / development
- Operations / sustainment
- Integration / test
- Key events

**Exhibit R-4a, RDT&E Schedule Detail**

DATE

**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0804757F JOINT NATIONAL TRAINING CENTER</b>	PROJECT NUMBER AND TITLE <b>5124 Training Transformation</b>
---	---	---

(U) <u>Schedule Profile</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) AFMSTT	2Q	2Q	2Q
(U) Basic Operating Support, System Acquisition, Engineering Support	1Q	1Q	1Q
(U) Multi-Level Security	2Q		
(U) Concept of Operations for Space DMOC-S	3Q	3Q	3Q

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**UNCLASSIFIED**

PE NUMBER: 0804772F  
 PE TITLE: TRAINING DEVELOPMENTS

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0804772F TRAINING DEVELOPMENTS</b>
--	---

Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.000	0.000	1.769	0.000	0.000	0.000	0.000	0.000	0.000	0.000
5311 Continuous Learning	0.000	0.000	1.769	0.000	0.000	0.000	0.000	0.000	0.000	0.000

**(U) A. Mission Description and Budget Item Justification**

Program develops specialized training, instructional systems development, and common use training centers. Additionally, develops training course materials, career ladder training, and Career Development Courses (CDC's) as well as tasks and training analysis, trainer development flights, and AF Occupational Measurement Squadron (AFOMS).

Program further provides Continuous Learning (CL) and establishes formal systematic approach for insertion of new technologies into education training systems. CL develops, employs and utilizes advanced technologies such as Visualization, Virtual Environment, Artificial Intelligence and Speech Recognition for increase effective learning. Specifically, supports studies, contractor support, equipment, software, travel required for design, development and implementation of CL.

**(U) B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget			1.800
(U) Current PBR/President's Budget	0.000	0.000	1.769
(U) Total Adjustments	0.000	0.000	
(U) Congressional Program Reductions			
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer			
(U) <u>Significant Program Changes:</u>			

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>					PE NUMBER AND TITLE <b>0804772F TRAINING DEVELOPMENTS</b>			PROJECT NUMBER AND TITLE <b>5311 Continuous Learning</b>		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5311 Continuous Learning	0.000	0.000	1.769	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

Program develops specialized training, instructional systems development, and common use training centers. Additionally, develops training course materials, career ladder training, and Career Development Courses (CDC's) as well as tasks and training analysis, trainer development flights, and AF Occupational Measurement Squadron (AFOMS).

Program further provides Continuous Learning (CL) and establishes formal systematic approach for insertion of new technologies into education training systems. CL develops, employs and utilizes advanced technologies such as Visualization, Virtual Environment, Artificial Intelligence and Speech Recognition for increase effective learning. Specifically, supports studies, contractor support, equipment, software, travel required for design, development and implementation of CL.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Development of Spiral 1 Activities			1.519
(U) Development of Technological Solutions and Conduct AoA for Spiral 1			0.250
(U) Total Cost	0.000	0.000	1.769

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Not applicable										

**(U) D. Acquisition Strategy**

Not applicable

UNCLASSIFIED

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>07 Operational System Development</b>				<b>0804772F TRAINING DEVELOPMENTS</b>					<b>5311 Continuous Learning</b>			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> Development of Specialized Skill Training Subtotal Product Development Remarks:	Various	TBD	0.000	0.000		0.000		1.519 1.519		Continuing Continuing	TBD TBD	TBD TBD
(U) <u>Support</u> Support for Spiral 1 Activities Subtotal Support Remarks:	Various	TBD	0.000	0.000		0.000		0.250 0.250		Continuing Continuing	TBD TBD	TBD TBD
(U) <u>Test &amp; Evaluation</u>  Subtotal Test & Evaluation Remarks:			0.000	0.000		0.000		0.000		0.000	0.000	0.000
(U) <u>Management</u> Program Management Support  Subtotal Management Remarks:	Time & Materials	TBD	0.000	0.000		0.000		0.000		0.000	0.000	0.000
(U)  Subtotal Remarks:			0.000	0.000		0.000		0.000		0.000	0.000	0.000
(U) Total Cost			0.000	0.000		0.000		1.769		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0804772F TRAINING  
DEVELOPMENTS

PROJECT NUMBER AND TITLE  
5311 Continuous Learning

# Continuous Learning



## Development of Specialized Skill Training



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Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0804772F TRAINING  
DEVELOPMENTS

PROJECT NUMBER AND TITLE

5311 Continuous Learning

(U) Schedule Profile

FY 2008

FY 2009

FY 2010

(U) Development of Specialized Skill Training

1-4Q

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**UNCLASSIFIED**

PE NUMBER: 0808716F  
 PE TITLE: OTHER PERSONNEL ACTIVITIES

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>May 2009</b>
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BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0808716F OTHER PERSONNEL ACTIVITIES</b>
---	---

Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.114	1.113	0.116	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5141 Engineering Analysis	0.114	1.113	0.116	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

**(U) A. Mission Description and Budget Item Justification**

The Defense Equal Opportunity Management Institute (DEOMI) provides grants to the civilian academic community to conduct research on military and civilian equal opportunity issues using standard social science methodology. The research methodology includes developing a literature review proposing hypotheses and methods of research. The grantee will then gather appropriate data, draw conclusions and present discussions, recommendations and reports based on their funding.

Previously the US Air Force provided Operations & Maintenance (O&M) funding to DEOMI as their contribution. However, beginning with 2005, it was determined that Research, Development, Test & Evaluation (RDT&E) funding would be more proper.

This program is in Budget Activity 7 as it provides support to operational forces.

**(U) B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	0.114	1.113	0.118
(U) Current PBR/President's Budget	0.114	1.113	0.116
(U) Total Adjustments	0.000	0.000	
(U) Congressional Program Reductions			
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer			
(U) <u>Significant Program Changes:</u>			

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>					PE NUMBER AND TITLE <b>0808716F OTHER PERSONNEL ACTIVITIES</b>			PROJECT NUMBER AND TITLE <b>5141 Engineering Analysis</b>		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5141 Engineering Analysis	0.114	1.113	0.116	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

The Defense Equal Opportunity Management Institute (DEOMI) provides grants to the civilian academic community to conduct research on military and civilian equal opportunity issues using standard social science methodology. The research methodology includes developing a literature review proposing hypotheses and methods of research. The grantee will then gather appropriate data, draw conclusions and present discussions, recommendations and reports based on their funding.

Previously the US Air Force provided Operations & Maintenance (O&M) funding to DEOMI as their contribution. However, beginning with 2005, it was determined that Research, Development, Test & Evaluation (RDT&E) funding would be more proper.

This program is in Budget Activity 7 as it provides support to operational forces.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Conduct research on military and civilian equal opportunity issues.	0.114	1.113	0.116
(U)			
(U)			
(U) Total Cost	0.114	1.113	0.116

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Not Applicable										

**(U) D. Acquisition Strategy**

Grants will be awarded competitively.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>07 Operational System Development</b>				<b>0808716F OTHER PERSONNEL ACTIVITIES</b>					<b>5141 Engineering Analysis</b>			
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
DEOMI	Grant	Various		0.114	Mar-08	1.113	Mar-09	0.116	Mar-10	Continuing	TBD	TBD
Subtotal Product Development			0.000	0.114		1.113		0.116		Continuing	TBD	TBD
Remarks:												
(U) <u>Support</u>												
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			0.000	0.114		1.113		0.116		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0808716F OTHER PERSONNEL  
ACTIVITIES

PROJECT NUMBER AND TITLE  
5141 Engineering Analysis

# Engineering Analysis

Fiscal Year	FY08				FY09				FY10			
	1	2	3	4	1	2	3	4	1	2	3	4
Receive Proposal		▲				▲				▲		
Award Grant			▲				▲				▲	

Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0808716F OTHER PERSONNEL  
ACTIVITIES

PROJECT NUMBER AND TITLE

5141 Engineering Analysis

(U) Schedule Profile

FY 2008

FY 2009

FY 2010

(U) Receive Grants

2Q

(U) Award Grants

3Q

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**UNCLASSIFIED**

PE NUMBER: 0901202F

PE TITLE: JOINT PERSONNEL RECOVERY AGENCY (JPRA)

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0901202F JOINT PERSONNEL RECOVERY AGENCY (JPRA)</b>
--	--

Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	5.192	5.752	6.376	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5196 EO/IR Warning & Countermeasures Tech	5.192	5.752	6.376	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

**(U) A. Mission Description and Budget Item Justification**

Joint Personnel Recovery Agency (JPRA) to execute tasks related to Commander, USJFCOM responsibilities as DoD Executive Agent (less policy) for Personnel Recovery. Provides separate PE to execute AF task to "fund JPRA" in DODD 2310.2. Includes funding for research and development (R&D), support equipment, contract services, and all associated costs specifically identified to support the JPRA headquarters at Ft. Belvoir, VA and other JPRA operating locations and project sites.

Funding provides USJFCOM capability to conduct Personnel Recovery advanced concept testing and development, identify, research, and exploit technologies to provide COCOM and Service Personnel Recovery capabilities.

Program is in Budget Activity 7 because it provides for development and testing in support of recovery capability.

**(U) B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	5.192	5.752	6.485
(U) Current PBR/President's Budget	5.192	5.752	6.376
(U) Total Adjustments	0.000	0.000	
(U) Congressional Program Reductions			
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer			
(U) <u>Significant Program Changes:</u>			

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

<b>BUDGET ACTIVITY</b> 07 Operational System Development				<b>PE NUMBER AND TITLE</b> 0901202F JOINT PERSONNEL RECOVERY AGENCY (JPRA)				<b>PROJECT NUMBER AND TITLE</b> 5196 EO/IR Warning & Countermeasures Tech			
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total	
5196 EO/IR Warning & Countermeasures Tech	5.192	5.752	6.376	0.000	0.000	0.000	0.000	0.000	Continuing	TBD	
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0			

**(U) A. Mission Description and Budget Item Justification**

Joint Personnel Recovery Agency (JPRA) to execute tasks related to Commander, USJFCOM responsibilities as DoD Executive Agent (less policy) for Personnel Recovery. Provides separate PE to execute AF task to "fund JPRA" in DODD 2310.2. Includes funding for research and development (R&D), support equipment, contract services, and all associated costs specifically identified to support the JPRA headquarters at Ft. Belvoir, VA and other JPRA operating locations and project sites.

Funding provides USJFCOM capability to conduct Personnel Recovery advanced concept testing and development, identify, research, and exploit technologies to provide COCOM and Service Personnel Recovery capabilities.

Program is in Budget Activity 7 because it provides for development and testing in support of recovery capability.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Isolated Personnel Location, Survivability & Evasion Aid Development	1.802	1.900	1.000
(U) Personnel Recovery Mission Software Improvement	1.095	0.200	0.350
(U) Survival Radio Command & Control Tech Integration Study			0.200
(U) Interagency/Coalition Command & Control Interoperability Tech Study			0.400
(U) Recovery Force Survivability Study			0.500
(U) Personnel Recovery Tactics, Techniques & Procedures for Urban Operations	2.295	3.652	3.926
(U) Total Cost	5.192	5.752	6.376

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	Actual	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Complete	

(U) N/A

**(U) D. Acquisition Strategy**

Contracts will be awarded through full and open competition.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>07 Operational System Development</b>				<b>0901202F JOINT PERSONNEL RECOVERY AGENCY (JPRA)</b>					<b>5196 EO/IR Warning &amp; Countermeasures Tech</b>			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
Isolated Personnel Location, Survivability & Evasion Aid Development	TBD	TBD		2.500	May-08	2.700	May-09	1.000	Apr-10	Continuing	TBD	0.100
Personnel Recovery Mission Software Improvement	TBD	TBD		0.250	Mar-08	0.300	Mar-09	0.350	Mar-10	Continuing	TBD	0.440
Survival Radio Command & Control Tech Integration Study	TBD	TBD		0.790	Mar-08	0.800	Mar-09	0.200	Apr-10	Continuing	TBD	0.040
Interagency/Coalition Command & Ctrl Interoperability Tech Study	TBD	TBD		0.695	Jun-08	1.000	Jun-09	0.400	Apr-10	Continuing	TBD	0.100
Recovery Force Survivability Study	TBD	TBD		0.300	Jun-08	0.200	Jun-08	0.500	Apr-10	Continuing	TBD	0.100
Subtotal Product Development			0.000	4.535		5.000		2.450		Continuing	TBD	0.780
Remarks:												
(U) <u>Support</u>											0.000	0.000
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
Personnel & Recovery Tactics, Techniques & Procedures	TBD	TBD		0.657	Jun-08	0.752	Jun-09	3.926	Mar-10	Continuing	TBD	0.100
Subtotal Test & Evaluation			0.000	0.657		0.752		3.926		Continuing	TBD	0.100
Remarks:												
(U) <u>Management</u>											0.000	0.000
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			0.000	5.192		5.752		6.376		Continuing	TBD	0.880

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0901202F JOINT PERSONNEL  
RECOVERY AGENCY (JPRA)

PROJECT NUMBER AND TITLE  
5196 EO/IR Warning &  
Countermeasures Tech

JPRA

Fiscal Year	FY08				FY09				FY10			
	1	2	3	4	1	2	3	4	1	2	3	4
PRMS/Tech Assessment		▲				▲				▲		
PRESS			▲				▲				▲	

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**Exhibit R-4a, RDT&E Schedule Detail**

DATE

**May 2009**

BUDGET ACTIVITY

**07 Operational System Development**

PE NUMBER AND TITLE

**0901202F JOINT PERSONNEL  
RECOVERY AGENCY (JPRA)**

PROJECT NUMBER AND TITLE

**5196 EO/IR Warning &  
Countermeasures Tech**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) <b><u>Schedule Profile</u></b>			
(U) Software Improvement	3Q	1-4Q	3-4Q
(U) Integration/Interoperability/Survivability Studies	2-3Q	2-3Q	1-4Q
(U) Urban Operations	1Q	2Q	2-4Q
(U) Aid Development	4Q	1Q	1-4Q

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**UNCLASSIFIED**

PE NUMBER: 0901212F  
 PE TITLE: SERVICE-WIDE SUPPORT

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0901212F SERVICE-WIDE SUPPORT</b>
--	--

Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	6.454	3.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
5256 Military Flight Operations Quality A	6.454	3.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

**(U) A. Mission Description and Budget Item Justification**

The Air Force has initiated development of MFOQA processes for various aircraft across the mission spectrum.

MFOQA is the analysis and trending of aircraft system and flight performance data to proactively enhance combat readiness through improvements in operations, maintenance, training and safety functions. Analysis of recorded data identifies and quantifies both normal and hazardous flight environments, identifies mishap precursors and potential mitigation measures, and where applicable, enables the monitoring of control measure effectiveness. Benefits are derived through a variety of analysis processes, including the operational trending of aggregate data and post-mission playback features for both aircrew flight operations training and maintenance diagnostics.

MFOQA provides tools for commanders to: establish a baseline for normal operations; identify, mitigate, and monitor operational risks while detecting precursors to aviation mishaps; and identify operational inefficiencies. MFOQA gives capabilities to multiple levels and functional areas to improve and enhance mission-effectiveness through awareness of abnormal trends, continuous knowledge of aircraft systems performance, and insight into the effectiveness of procedures, policy, and aircrew training on actual mission accomplishment.

MFOQA programs realize the following goals:

Mishap Reduction - Reduces the statistical rate of aviation mishaps by identifying risks, implementing effective control measures, and enabling continuous monitoring of risk mitigation.

Operational Efficiency - Improves aircrew training effectiveness, reduces aircraft downtime, and modifies operations to reduce consumption and increase system component life cycles.

Operational Readiness - Enhances war-fighting capabilities by preserving resources available for operational requirements and improving mission performance.

Exhibit R-2, RDT&E Budget Item Justification

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0901212F SERVICE-WIDE SUPPORT

(U) B. Program Change Summary (\$ in Millions)

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	6.454	3.008	
(U) Current PBR/President's Budget	6.454	3.008	
(U) Total Adjustments	0.000	0.000	
(U) Congressional Program Reductions			
Congressional Rescissions			
Congressional Increases			
Reprogrammings			
SBIR/STTR Transfer			
(U) <u>Significant Program Changes:</u>			



**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>					PE NUMBER AND TITLE <b>0901212F SERVICE-WIDE SUPPORT</b>			PROJECT NUMBER AND TITLE <b>5256 Military Flight Operations Quality A</b>		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5256 Military Flight Operations Quality A	6.454	3.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

The Air Force has initiated development of MFOQA processes for various aircraft across the mission spectrum.

MFOQA is the analysis and trending of aircraft system and flight performance data to proactively enhance combat readiness through improvements in operations, maintenance, training and safety functions. Analysis of recorded data identifies and quantifies both normal and hazardous flight environments, identifies mishap precursors and potential mitigation measures, and where applicable, enables the monitoring of control measure effectiveness. Benefits are derived through a variety of analysis processes, including the operational trending of aggregate data and post-mission playback features for both aircrew flight operations training and maintenance diagnostics.

MFOQA provides tools for commanders to: establish a baseline for normal operations; identify, mitigate, and monitor operational risks while detecting precursors to aviation mishaps; and identify operational inefficiencies. MFOQA gives capabilities to multiple levels and functional areas to improve and enhance mission-effectiveness through awareness of abnormal trends, continuous knowledge of aircraft systems performance, and insight into the effectiveness of procedures, policy, and aircrew training on actual mission accomplishment.

MFOQA programs realize the following goals:

Mishap Reduction - Reduces the statistical rate of aviation mishaps by identifying risks, implementing effective control measures, and enabling continuous monitoring of risk mitigation.

Operational Efficiency - improves aircrew training effectiveness, reduces aircraft downtime, and modifies operations to reduce consumption and increase system component life cycles.

Operational Readiness - Enhances war-fighting capabilities by preserving resources available for operational requirements and improving mission performance.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Develop flight data collection modifications on aviation platforms, including but not limited to airlift such as the C-17, C-5 and C-130m trainers such as the T-5 and T-38, bombers such as the B-1 and B-2, fighters such as the F-15, F-16, F-22 and F-35, refuelers such as the KC-10 and KC-135, the CV-22, and Unmanned Aerial Systems such as the Predator and Global Hawk, providing insight into world-wide transportation operations. These upgrades provide information generated inflight for routine analysis to identify deviations from expected procedures and parameters.	6.454	3.008	
(U) Total Cost	6.454	3.008	0.000

Exhibit R-2a, RDT&E Project Justification

DATE

May 2009

BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0901212F SERVICE-WIDE SUPPORT</b>	PROJECT NUMBER AND TITLE <b>5256 Military Flight Operations Quality A</b>
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(U) **C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) 91212F-3010 BP 10	7.483	10.692	4.024							
(U) 41130F-3010 BP 11	0.470	0.470								
(U) 84740F-3010 BP 11	0.613									
(U) 91212F-3400	2.586	3.996	5.031	5.598	5.390	5.440				

(U) **D. Acquisition Strategy**

The Lead Operating MAJCOMs (as defined by AFPD 10-9, Lead Operating Command Weapons System Management), in conjunction with the Air Force Safety Center and the Aeronautical System Center will determine the feasibility of each aircraft platform for MFOQA process implementation. Analysis software development and process implementation will occur on a staggered schedule, approximately 2 aircraft fleets per year.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE				
<b>07 Operational System Development</b>				<b>0901212F SERVICE-WIDE SUPPORT</b>				<b>5256 Military Flight Operations Quality A</b>				
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
Boeing (C-17)	Unknown	Wright Patterson		5.995	Dec-08	3.008	Dec-09			Continuing	TBD	TBD
Hawker Beachcraft (T-6)	Unknown	Wright Patterson		0.459	Dec-08					Continuing	TBD	TBD
Subtotal Product Development			0.000	6.454		3.008		0.000		Continuing	TBD	TBD
Remarks:												
(U) <u>Support</u>											0.000	0.000
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>											0.000	0.000
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Management</u>											0.000	0.000
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			0.000	6.454		3.008		0.000		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0901212F SERVICE-WIDE SUPPORT

PROJECT NUMBER AND TITLE  
5256 Military Flight Operations  
Quality A

## Military Flight Operations Quality Assurance (MFOQA)

	2006	2007	2008	2009	2010	2011	2012	2013
<b>Aircraft Data Collection Upgrades</b>			██████████					
<b>Software Development</b>			██████████					
<b>Results Distribution &amp; Corrective Action</b>			██████████					

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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>May 2009</b>
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BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0901212F SERVICE-WIDE SUPPORT</b>	PROJECT NUMBER AND TITLE <b>5256 Military Flight Operations Quality A</b>
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	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) <b><u>Schedule Profile</u></b>			
(U) Aircraft Data Collection Upgrades	1-4Q	1-4Q	
(U) Aircraft Fleet MFOQA Analysis Software Development	1-4Q	1-4Q	
(U) T-6 IDARS Upgrade	1Q		
(U) C-17 Data Recorder Upgrade	1Q	1Q	

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PE NUMBER: 0901218F  
 PE TITLE: Civilian Compensation Program

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0901218F Civilian Compensation Program</b>
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	13.328	8.101	8.174	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
4139 Civilian Compensation Program	13.328	8.101	8.174	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

**(U) A. Mission Description and Budget Item Justification**

This program element provides for payment of civilian compensation benefits for disability due to personal injury sustained while in the performance of duty or due to employment-related disease according to the Federal Employees Compensation Act (FECA) under Title 5 U.S.C., Chapter 81. The Department of Labor (DOL) administers this program and charges the Department of the Air Force for its employee costs; therefore, this is a MUST PAY bill for Air Force. The PE excludes manpower authorizations and costs.

This Program Element (PE) is in Budget Activity 7 in support of payment of civilian compensation benefits for disability due to personal injury sustained while in the performance of duty or due to employment-related disease according to the Federal Employees Compensation Act (FECA) under Title 5 U.S.C., Chapter 81.

**(U) B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	8.019	8.123	8.313
(U) Current PBR/President's Budget	13.328	8.101	8.174
(U) Total Adjustments	5.309	-0.022	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.022	
Congressional Increases			
Reprogrammings	5.309		
SBIR/STTR Transfer			
(U) <u>Significant Program Changes:</u>			
N/A			

Exhibit R-2a, RDT&E Project Justification

DATE

May 2009

BUDGET ACTIVITY <b>07 Operational System Development</b>					PE NUMBER AND TITLE <b>0901218F Civilian Compensation Program</b>			PROJECT NUMBER AND TITLE <b>4139 Civilian Compensation Program</b>		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
4139 Civilian Compensation Program	13.328	8.101	8.174	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) **A. Mission Description and Budget Item Justification**

This program element provides for payment of civilian compensation benefits for disability due to personal injury sustained while in the performance of duty or due to employment-related disease according to the Federal Employees Compensation Act (FECA) under Title 5 U.S.C., Chapter 81. The Department of Labor (DOL) administers this program and charges the Department of the Air Force for its employee costs; therefore, this is a MUST PAY bill for Air Force. The PE excludes manpower authorizations and costs.

This Program Element (PE) is in Budget Activity 7 in support of payment of civilian compensation benefits for disability due to personal injury sustained while in the performance of duty or due to employment-related disease according to the Federal Employees Compensation Act (FECA) under Title 5 U.S.C., Chapter 81.

(U) **B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Accomplishments/Planned Program			
(U) Continue a program to compensate employees assigned to RDT&E facilities for worked-related injury or disease.	13.328	8.101	8.174
(U) Total Cost	13.328	8.101	8.174

(U) **C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Not applicable										

(U) **D. Acquisition Strategy**

Not Applicable.



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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE				
<b>07 Operational System Development</b>				<b>0901218F Civilian Compensation Program</b>				<b>4139 Civilian Compensation Program</b>				
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> Continue development of compensation plan Subtotal Product Development Remarks:			0.000	13.328	Aug-08	8.101	Aug-09	8.174	Aug-09	Continuing	TBD	TBD
(U) <u>Support</u> Not Applicable Subtotal Support Remarks:			0.000	0.000		0.000		0.000		0.000	0.000	0.000
(U) <u>Test &amp; Evaluation</u> Not Applicable Subtotal Test & Evaluation Remarks:			0.000	0.000		0.000		0.000		0.000	0.000	0.000
(U) <u>Management</u> Not Applicable Subtotal Management Remarks:			0.000	0.000		0.000		0.000		0.000	0.000	0.000
(U) <u>NA</u> Not Applicable											0.000	
(U) Total Cost Remarks:			0.000	13.328		8.101		8.174		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0901218F Civilian Compensation Program

PROJECT NUMBER AND TITLE  
4139 Civilian Compensation Program

**CIVILIAN  
COMPENSATION  
BENEFITS**

**FY08**

**FY09**

**FY10**



Payment of civilian  
compensation benefits

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<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>		DATE <b>May 2009</b>
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BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0901218F Civilian Compensation Program</b>	PROJECT NUMBER AND TITLE <b>4139 Civilian Compensation Program</b>
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(U) <b><u>Schedule Profile</u></b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Continue development of compensation program	1-4Q	1-4Q	1-4Q

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PE NUMBER: 0901220F  
 PE TITLE: PERSONNEL ADMINISTRATION

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0901220F PERSONNEL ADMINISTRATION</b>
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	22.944	18.575	10.492	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5194 Personnel Services Delivery	17.194	16.375	10.492	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5272 Defense Integrated Military Human Resources System (DIMHRS)	5.750	2.200	0.000	0.000	0.000	0.000	0.000	0.000	0.000	7.950

In FY 2009, 675194 Force Development Transformation was changed to Personnel Services Delivery to broaden the scope beyond force development to other personnel services which may be automated.

**(U) A. Mission Description and Budget Item Justification**  
 Personnel Services Delivery (PSD), which includes the Force Development Transformation (FDT) project, under the Personnel Administration program funds operational developments necessary to acquire, field, and modify segments of an integrated Air Force Human Resource (HR) customer service delivery system that will effectively incorporate personnel, manpower, and pay services for the Total Force - Active Duty, Reserve, Guard, and Civilians. It supports the transition from the current AF personnel HR system enterprise, which includes the Military Personnel Data System (MilPDS) and other AF unique applications, into a Global Combat Support System-Air Force (GCSS-AF) compliant enterprise that supports the deployment of the Defense Integrated Military Human Resources System (DIMHRS). PSD is supported through the AF enterprise architecture using Enterprise Resource Planning (ERP) and other Commercial Off The Shelf (COTS) products. PSD provides the Air Force unique HR capabilities not delivered in DIMHRS, and ensures MilPDS and other legacy systems are compatible with DIMHRS. PSD supports the migration of legacy applications (those not subsumed by DIMHRS) and other information technology support to a Service Oriented Architecture (SOA)-based data services environment.

This program is in Budget Activity 7, Operational System Development, because it upgrades and develops capabilities for current operational systems.

**(U) B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	16.714	18.625	10.672
(U) Current PBR/President's Budget	22.944	18.575	10.492
(U) Total Adjustments	6.230	-0.050	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.050	
Congressional Increases			
Reprogrammings	6.700		
SBIR/STTR Transfer	-0.470		
(U) <u>Significant Program Changes:</u>			

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>							PE NUMBER AND TITLE <b>0901220F PERSONNEL ADMINISTRATION</b>		PROJECT NUMBER AND TITLE <b>5194 Personnel Services Delivery</b>	
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5194 Personnel Services Delivery	17.194	16.375	10.492	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

Personnel Services Delivery (PSD), which includes the Force Development Transformation (FDT) project, under the Personnel Administration program funds operational developments necessary to acquire, field, and modify segments of an integrated Air Force Human Resource (HR) customer service delivery system that will effectively incorporate personnel, manpower, and pay services for the Total Force - Active Duty, Reserve, Guard, and Civilians. It supports the transition from the current AF personnel HR system enterprise, which includes the Military Personnel Data System (MilPDS) and other AF unique applications, into a Global Combat Support System-Air Force (GCSS-AF) compliant enterprise that supports the deployment of the Defense Integrated Military Human Resources System (DIMHRS). PSD is supported through the AF enterprise architecture using Enterprise Resource Planning (ERP) and other Commercial Off The Shelf (COTS) products. PSD will provide the Air Force unique HR capabilities not delivered in DIMHRS, and will ensure MilPDS and other legacy systems are compatible with DIMHRS. PSD will support the migration of legacy applications (those not subsumed by DIMHRS) and other information technology support to a SOA-based data services environment. Activities also include studies and analysis to support both current program planning and execution and future program planning.

Block 1 of the Force Development Toolkit which includes the airmen development plan module was deployed in Sep 2007, is operational, and sustainment actions are minimal as the operational environment is stable. In Dec 2008, the customer accepted Block 2 of the Force Development Toolkit which includes development plans for civilians, the personnel records display application, and role-based access. Block 2 was deployed at the end of Mar 2009.

This program is in Budget Activity 7, Operational System Development, because it upgrades and develops capabilities for current operational systems.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	FY 2008	FY 2009	FY 2010
(U) Develop application modules for the Force Development Tool Kit (FDTK) and legacy system migration	13.456	6.305	6.223
(U) Develop a GCSS-AF compliant systems enterprise infrastructure to transition from MilPDS to DIMHRS. This effort will integrate Air Force-unique, web-enabled, self-service capabilities with existing functionality.	0.000	5.500	0.000
(U) Direct Mission Support for Test and Evaluation	1.256	1.355	1.183
(U) Program Management Support	2.482	3.215	3.086
(U) Total Cost	17.194	16.375	10.492

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2008</u> Actual	<u>FY 2009</u> Estimate	<u>FY 2010</u> Estimate	<u>FY 2011</u> Estimate	<u>FY 2012</u> Estimate	<u>FY 2013</u> Estimate	<u>FY 2014</u> Estimate	<u>FY 2015</u> Estimate	<u>Cost to Complete</u>	<u>Total Cost</u>
(U) Other Procurement, AF WSC 834010 General Information	1.626	1.012	0.698	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

**Exhibit R-2a, RDT&E Project Justification**

DATE

**May 2009**

BUDGET ACTIVITY

**07 Operational System Development**

PE NUMBER AND TITLE

**0901220F PERSONNEL  
ADMINISTRATION**

PROJECT NUMBER AND TITLE

**5194 Personnel Services Delivery**

**(U) C. Other Program Funding Summary (\$ in Millions)**

Technologies

(U) Operations and Maintenance, AF	20.156	16.377	36.348	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
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**(U) D. Acquisition Strategy**

Personnel Services Delivery employs an evolutionary acquisition strategy with spiral development contracts that are awarded in a competitive environment.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
<b>07 Operational System Development</b>				<b>0901220F PERSONNEL ADMINISTRATION</b>					<b>5194 Personnel Services Delivery</b>			
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> FDTK (Block 1 & 2)	IDIQ	CellExchange Federal, Inc. Framingham, MA	10.650	13.456	Mar-08	0.000		0.000		0.000	24.106	TBD
Human Resource Applications Enterprise Infrastructure	FFP IDIQ	TBD CellExchange, Federal, Inc. Framingham, MA	0.000	0.000		5.105	Mar-09	6.223	Dec-09	Continuing	TBD	TBD
DIMHRS Interface	TBD	TBD				5.500	Jun-09				5.500	TBD
Subtotal Product Development			12.040	13.456		11.805		6.223		Continuing	TBD	TBD
Remarks:												
(U) <u>Test &amp; Evaluation</u> Hardware/Software Test & Evaluation	T&M	Lockheed Martin Gaithersburg, MD	0.355	0.999	May-08	1.360	Feb-09	1.183	Feb-10	Continuing	TBD	TBD
Hardware/Software Test & Evaluation	T&M	Diversified Technical Services Inc, Randolph AFB, TX	0.675	0.257	May-08	0.000		0.000		0.000	0.932	TBD
Subtotal Test & Evaluation			1.030	1.256		1.360		1.183		Continuing	TBD	TBD
Remarks:												
(U) <u>Management</u> Program Management Office Support	FFP/LOE	PE Systems, Fairfax VA; Jacobs Lincoln MA	1.310	2.482	Mar-08	3.210	Dec-08	3.086	Dec-09	Continuing	TBD	TBD
Subtotal Management			1.310	2.482		3.210		3.086		Continuing	TBD	TBD
Remarks:												
(U) Total Cost			14.380	17.194		16.375		10.492		Continuing	TBD	TBD

R-1 Line Item No. 241

Page-4 of 10

Project 5194

Exhibit R-3 (PE 0901220F)



Exhibit R-4, RDT&E Schedule Profile

DATE

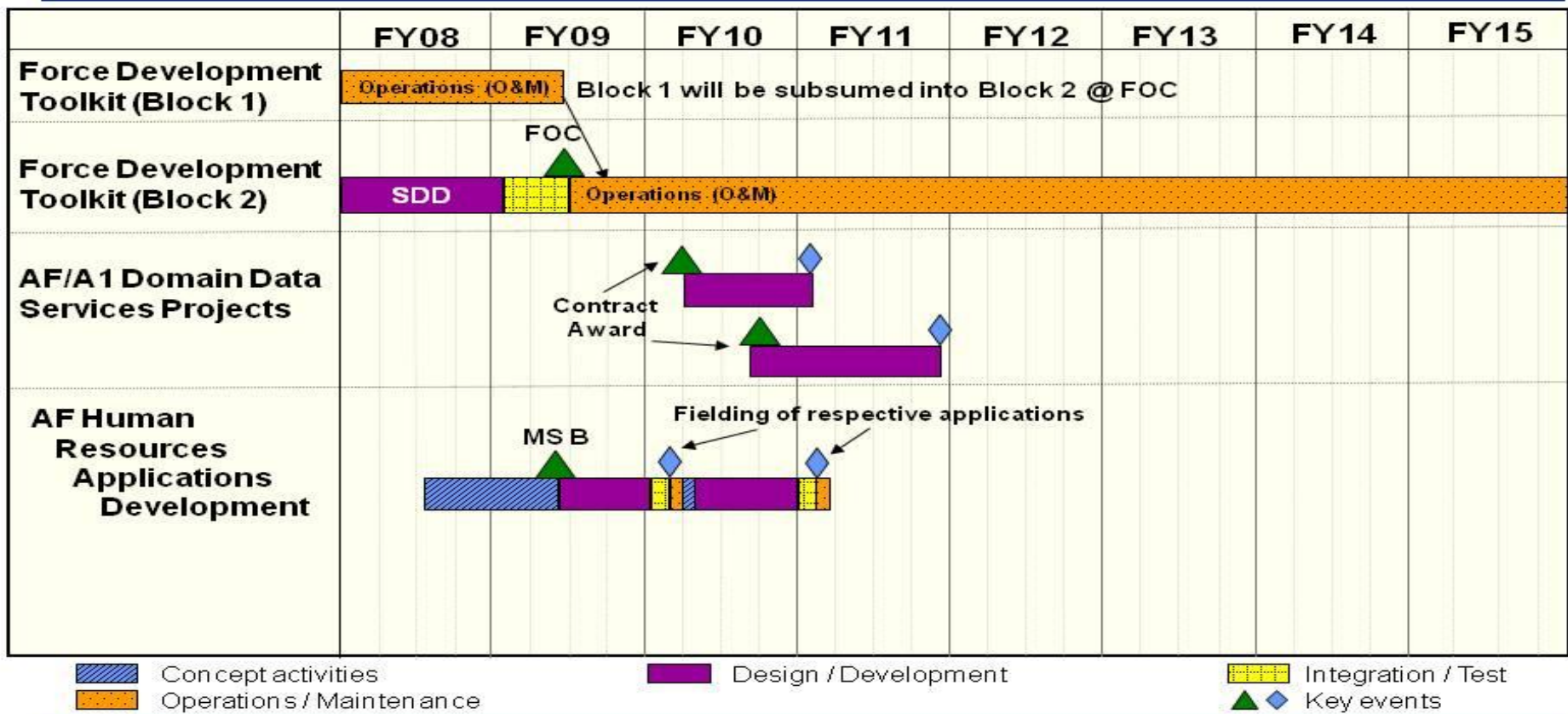
May 2009

BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0901220F PERSONNEL  
ADMINISTRATION

PROJECT NUMBER AND TITLE  
5194 Personnel Services Delivery

## Personnel Services Delivery Schedule



PB10 R-Docs

As of 15 Apr 09

UNCLASSIFIED

<b>Exhibit R-4a, RDT&amp;E Schedule Detail</b>	DATE <b>May 2009</b>
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BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0901220F PERSONNEL ADMINISTRATION</b>	PROJECT NUMBER AND TITLE <b>5194 Personnel Services Delivery</b>
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	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) <b><u>Schedule Profile</u></b>			
(U) FDTK (Block 1 & 2) FOC		2Q	
(U) Domain Data Services Projects			2-4Q
(U) AF Human Resources Application Development MS B		2Q	
(U) AF Human Resources Applications Release			1Q

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>					PE NUMBER AND TITLE <b>0901220F PERSONNEL ADMINISTRATION</b>			PROJECT NUMBER AND TITLE <b>5272 Defense Integrated Military Human Resources System (DIMHRS)</b>		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5272 Defense Integrated Military Human Resources System (DIMHRS)	5.750	2.200	0.000	0.000	0.000	0.000	0.000	0.000	0.000	7.950
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

DIMHRS is a Department of Defense (DoD) Enterprise Resource Planning (ERP) product, and requires specific Air Force (AF) management and budget control to prepare for implementation. To enable AF efforts, DoD allocates funds to the AF for DIMHRS RDT&E integration efforts as needed. Activities include communication, change management, testing, training, systems transition, deployment, data migration and schedule control. The AF must ensure full range of Human Resource (HR) & Pay requirements are presented to the DoD DIMHRS developer, are properly incorporated into DIMHRS, fully tested and then deployed. AF unique HR functionality, not provided by DIMHRS, is provided by PSD (BPAC 675194). PSD also supports the migration of legacy applications and is the basis for other information technology capabilities associated with AF Force Development. Activities also include studies and analysis to support both current program planning and execution and future program planning.

In Jan 2009, the DepSecDef directed a program restructure for DIMHRS. The military departments are to pursue separate versions of DIMHRS based on a common set of core functionality and pushes acquisition responsibility to the services. FY09 funds support this program restructure.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Integrate legacy systems with DIMHRS	1.406	1.210	0.000
(U) Program Management	3.794	0.440	0.000
(U) Tools Acquisition	0.550	0.550	0.000
(U) Total Cost	5.750	2.200	0.000

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Not applicable										

**(U) D. Acquisition Strategy**

Defense Integrated Military Human Resource System employs an evolutionary acquisition strategy with spiral development contracts that are negotiated and awarded in a competitive environment.

UNCLASSIFIED

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0901220F PERSONNEL ADMINISTRATION</b>	<b>PROJECT NUMBER AND TITLE</b> <b>5272 Defense Integrated Military Human Resources System (DIMHRS)</b>
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<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> DIMHRS Interface Design/Integration	FFP	Boze, Allen, Hamilton, Inc McLean, VA	0.000	2.139	Aug-07	0.990	Aug-08	0.000		0.000	3.129	TBD
Subtotal Product Development			0.000	2.139		0.990		0.000		0.000	3.129	TBD
Remarks:												
(U) <u>Support</u> DIMHRS PMO Support	FFP	Boze, Allen, Hamilton, Inc McLean, VA		1.421	Aug-07	0.920	Aug-08	0.000		0.000	2.341	TBD
Functional Transition Study	FFP	Oracle San Antonio, TX		0.100	Aug-07	0.100	Aug-08	0.000		0.000	0.200	TBD
DIMHRS Forms Analysis	FFP	SAIC Falls Church, VA		0.050	Sep-07	0.050	Sep-08	0.000		0.000	0.100	TBD
Subtotal Support			0.000	1.571		1.070		0.000		0.000	2.641	TBD
Remarks:												
(U) <u>Test &amp; Evaluation</u> Systems Integration Testing	FFP	Boze, Allen, Hamilton, Inc McLean, VA		0.200	Aug-07	0.000	Aug-08	0.000		0.000	0.200	TBD
Subtotal Test & Evaluation			0.000	0.200		0.000		0.000		0.000	0.200	TBD
Remarks:												
(U) <u>Management</u> Finance Support to Enterprise Program Management Office	FFP	Clearinghouse		0.560	Aug-07	0.140	Aug-08	0.000		0.000	0.700	TBD
Program Management of AF DIMHRS Integration	FFP	Boze, Allen, Hamilton, Inc McLean, VA		1.280	Aug-07	0.000		0.000		0.000	1.280	TBD
Subtotal Management			0.000	1.840		0.140		0.000		0.000	1.980	TBD
Remarks:												
(U) Total Cost			0.000	5.750		2.200		0.000		0.000	7.950	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

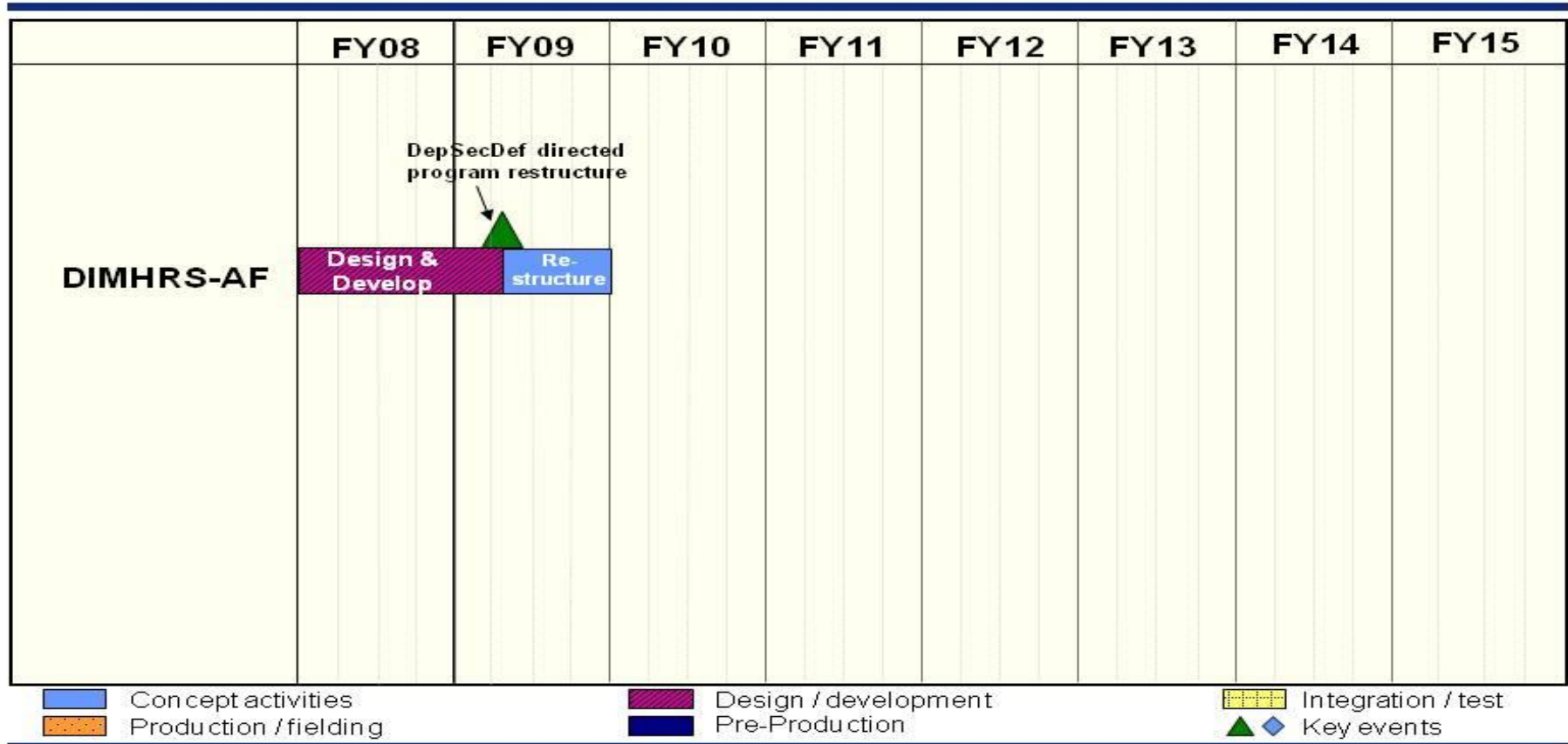
May 2009

BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0901220F PERSONNEL  
ADMINISTRATION

PROJECT NUMBER AND TITLE  
5272 Defense Integrated Military  
Human Resources System (DIMHRS)

# DIMHRS Schedule



PB10 R-Docs

As of 22 Apr 09

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Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0901220F PERSONNEL  
ADMINISTRATION

PROJECT NUMBER AND TITLE

5272 Defense Integrated Military  
Human Resources System (DIMHRS)

(U) Schedule Profile

FY 2008

FY 2009

FY 2010

(U) Design and Development

1-4Q

1Q

(U) DepSecDef directed restructure

2Q

(U) Concept activities for restructure

2-4Q

**UNCLASSIFIED**

PE NUMBER: 0901538F

PE TITLE: Financial Management Information Systems (FMIS)

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0901538F Financial Management Information Systems (FMIS)</b>
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	28.635	16.737	55.991	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5036 Financial Information Resource System (FIRST)	8.372	4.446	12.110	0.000	0.000	0.000	0.000	0.000	0.000	TBD
5179 Defense Enterprise Accounting Management System - AF (DEAMS)	20.263	12.291	43.881	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

**(U) A. Mission Description and Budget Item Justification**

The Financial Information Resource System (FIRST) is a software development effort to build a single system for programming and budget formulation that will allow the sunset of the Program Data System (PDS), Automated Budget Interactive Data Environment System (ABIDES) and Resource Allocation Programming Information Decision System (RAPIDS) legacy systems not later than FY14. The Budget Formulation (BF) capability supports force programming, formulation of budget requirements and deliberation of budget options, budget justification processes, and documentation. FIRST BF encompasses the budget exercise process, which affects all organizational levels, and is based on core financial and selected program information used to build the AF budget. In this budget, FIRST will provide the capability necessary to eventually replace the Program Data System (PDS). SAF/FMP will identify the capabilities in a strategic plan to complete budget formulation. FIRST will comply with: the Clinger-Cohen Act; the Business Enterprise Architecture (BEA); Chief Financial Officer (CFO) Act; DoD Information Technology Standards Registry (DISR) guidelines, and; Command, Control, Communications, Computer, Intelligence, Surveillance and Reconnaissance (C4ISR) guidelines.

Defense Enterprise Accounting Management System (DEAMS) is a commercial-off-the-shelf (COTS) based software configuration effort that will provide a modern accounting and finance system. DEAMS will replace existing accounting and finance legacy systems to provide core funds execution management functions consistent with financial management laws, regulations and policy, general ledger, funds management, payments, receivables, cost and revenues, and fiduciary reporting. The AF increment will build on a USTRANSCOM technology demonstration to include AF investment funding, commitment accounting, cost accounting, Foreign Military Sales (FMS) accounting and contingency operations management. DEAMS will be compliant with the Clinger-Cohen Act, Business Enterprise Architecture (BEA), and integrate into Global Combat Support System-Air Force (GCSS-AF). Activities also include studies and analysis to support both current program planning and execution and future program planning.

This program is in Budget Activity 7, Operational System Development, because the program modernizes Automated Information Systems (AIS).

Exhibit R-2, RDT&E Budget Item Justification

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0901538F Financial Management Information Systems (FMIS)

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Previous President's Budget	36.836	31.782	19.314
(U) Current PBR/President's Budget	28.635	16.737	55.991
(U) Total Adjustments	-8.201	-15.045	
(U) Congressional Program Reductions		-15.000	
Congressional Rescissions		-0.045	
Congressional Increases			
Reprogrammings	-7.373		
SBIR/STTR Transfer	-0.828		

(U) **Significant Program Changes:**

FY 2008 decrease to fund higher Air Force priorities. FY 2009 Congressional reduction of \$15M due to DEAMS program delay. FY 2010 increase required to fund functional design changes that will increase associated hardware and software costs.



**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>				<b>PE NUMBER AND TITLE</b> <b>0901538F Financial Management Information Systems (FMIS)</b>				<b>PROJECT NUMBER AND TITLE</b> <b>5036 Financial Information Resource System (FIRST)</b>		
Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5036 Financial Information Resource System (FIRST)	8.372	4.446	12.110	0.000	0.000	0.000	0.000	0.000	0.000	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

The Financial Information Resource System (FIRST) is a software development effort to build a single system for programming and budget formulation that will allow the sunset of the Program Data System (PDS), Automated Budget Interactive Data Environment System (ABIDES) and Resource Allocation Programming Information Decision System (RAPIDS) legacy systems not later than FY14. The Budget Formulation (BF) capability supports force programming, formulation of budget requirements and deliberation of budget options, budget justification processes, and documentation. FIRST BF encompasses the budget exercise process, which affects all organizational levels, and is based on core financial and selected program information used to build the AF budget. FIRST will provide the capability necessary to eventually replace the Program Data System (PDS). SAF/FMP will identify the capabilities in a strategic plan to complete budget formulation. Activities also include studies and analysis to support both current program planning and execution and future program planning.

FIRST will comply with: the Clinger-Cohen Act; the Business Enterprise Architecture (BEA); Chief Financial Officer (CFO) Act; DoD Information Technology Standards Registry (DISR) guidelines, and; Command, Control, Communications, Computer, Intelligence, Surveillance and Reconnaissance (C4ISR) guidelines.

The BF increment includes three spirals. Spiral One was deployed on the GCSS-AF Integration Framework and provided data query and reporting capability (to include trend and statistical analysis). Spiral Two and Three were combined and a Pilot was deployed to the GCSS-AF in June 2007 which enabled the user to conduct an operational assessment of key budget options and deliberation functions as well as selected force programming capabilities. Spiral Two/Three, deployed in February 2008, provided partial budget programming, budget requirement formulation, budget option deliberation, force programming, flying hour cost modeling, civilian personnel cost modeling and exhibits, interfaces to related systems, and electronic submission of budget to OSD. Remaining Spiral Two/Three efforts (renamed to Increment I PDS to provide clearer insight into the current development activity) will implement customer-identified enhancements to enable replacement of legacy PDS. Follow on plans will be based on the SAF/FMP budget formulation strategic plan. In accordance with DoDI 8500.2, Information Assurance activities are broken out for FY09-FY10.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Application Development & Test for Budget Formulation (BF) Spiral 2/Spiral 3 capability (delployed partial capability in Feb 08)	1.639		
(U) Application Development & Test for Increment I (PDS)	2.000	2.540	9.118
(U) Continuing Integration/Support/Analysis ( Includes Program Management Spt, GCSS-AF Test & Integration, Government Independent Test & Assessment (JITC), Responsible Test Organization (RTO), and the Defense Information Services Agency (DISA))	4.317	1.478	2.564
(U) Information Assurance	0.416	0.428	0.428

**Exhibit R-2a, RDT&E Project Justification**

DATE

**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0901538F Financial Management Information Systems (FMIS)</b>	PROJECT NUMBER AND TITLE <b>5036 Financial Information Resource System (FIRST)</b>
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(U) <b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Total Cost	8.372	4.446	12.110

(U) <b><u>C. Other Program Funding Summary (\$ in Millions)</u></b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to</u>	
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	<u>Total Cost</u>
(U) Other Procurement, AF (PE 0901538F)	0.846	0.827	0.837	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
(U) O&M, AF (PE 0308610F)	1.617	2.625	5.710	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

(U) **D. Acquisition Strategy**  
 The FIRST program will execute a spiral delivery of budget formulation and force programming capability that enables legacy system replacement. FIRST capability is being developed using the existing Cost Plus Award Fee (CPAF) contract. Follow on work, as defined in the SAF/FMP strategic plan, will be awarded through full and open competition.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0901538F Financial Management Information Systems (FMIS)</b>	<b>PROJECT NUMBER AND TITLE</b> <b>5036 Financial Information Resource System (FIRST)</b>
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(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> Application Development & Test for Budget Formulation (BF) Spiral 2/Spiral 3 capability (begin GCSS-AF Integration in FY09 and out)	C/CPAF	Accenture, Fairborn, Ohio		1.639	Nov-07					Continuing	TBD	TBD
Application Development & Test for Increment I PDS	C/CPAF	Accenture, Fairborn, Ohio		2.000		2.540		9.118			13.658	
Subtotal Product Development			0.000	3.639		2.540		9.118		Continuing	TBD	TBD
Remarks:												
(U) <u>Test &amp; Evaluation</u> GCSS-AF Integration	C/CPAF	LM. Fairborn, Ohio		0.488	Nov-07	0.000		0.000		Continuing	TBD	TBD
Joint Interoperability Test Center (JITC)	MIPR	JITC, Fort Huachuca, Arizona		0.027	Oct-07	0.038	Oct-08	0.009	Nov-09	Continuing	TBD	TBD
Responsible Test Organization (RTO)	PR	643 ELSS/EIRT, Gunter AFB, Al		0.000	Jan-08	0.045	Jan-09	0.161	Jan-10	Continuing	TBD	TBD
Capabilities Integration Environment (CIE)	PR	643 ELSS/EIRT, Gunter AFB, Al		0.000	Apr-08	0.050	Apr-09	0.200	Apr-10	Continuing	TBD	TBD
Defense Information Systems Agency (DISA)	MIPR	DISA, Montgomery, Al		1.008	Nov-07	1.000	Nov-08	1.000	Nov-09	Continuing	TBD	TBD
Tech Support	C/LOE	Quantech/Engility		0.698	Jan-08	0.340	Jan-09	0.812	Jan-10	Continuing	TBD	
Subtotal Test & Evaluation			0.000	2.221		1.473		2.182		Continuing	TBD	TBD
Remarks:												
(U) <u>Program Management Activities</u> PMA Support	C/LOE	Quantech/Engility		0.341	Jan-08	0.233	Jan-09	0.810	Jan-10	Continuing	TBD	TBD
Program Office Spt	Various	Various		0.171	Oct-07	0.200	Oct-08	0.000	Oct-09	Continuing	TBD	
CCARS	BA	554 ELSG, WRAFB, OH		2.000	Oct-07					Continuing	TBD	
Subtotal Program Management Activities			0.000	2.512		0.433		0.810		Continuing	TBD	TBD
Remarks:												
(U)												0.000

R-1 Line Item No. 242

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Exhibit R-3 (PE 0901538F)

Project 5036

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY	PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE		
<b>07 Operational System Development</b>	<b>0901538F Financial Management Information Systems (FMIS)</b>				<b>5036 Financial Information Resource System (FIRST)</b>		
Subtotal	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Remarks:							
(U) Total Cost	0.000	8.372	4.446	12.110	Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE  
May 2009

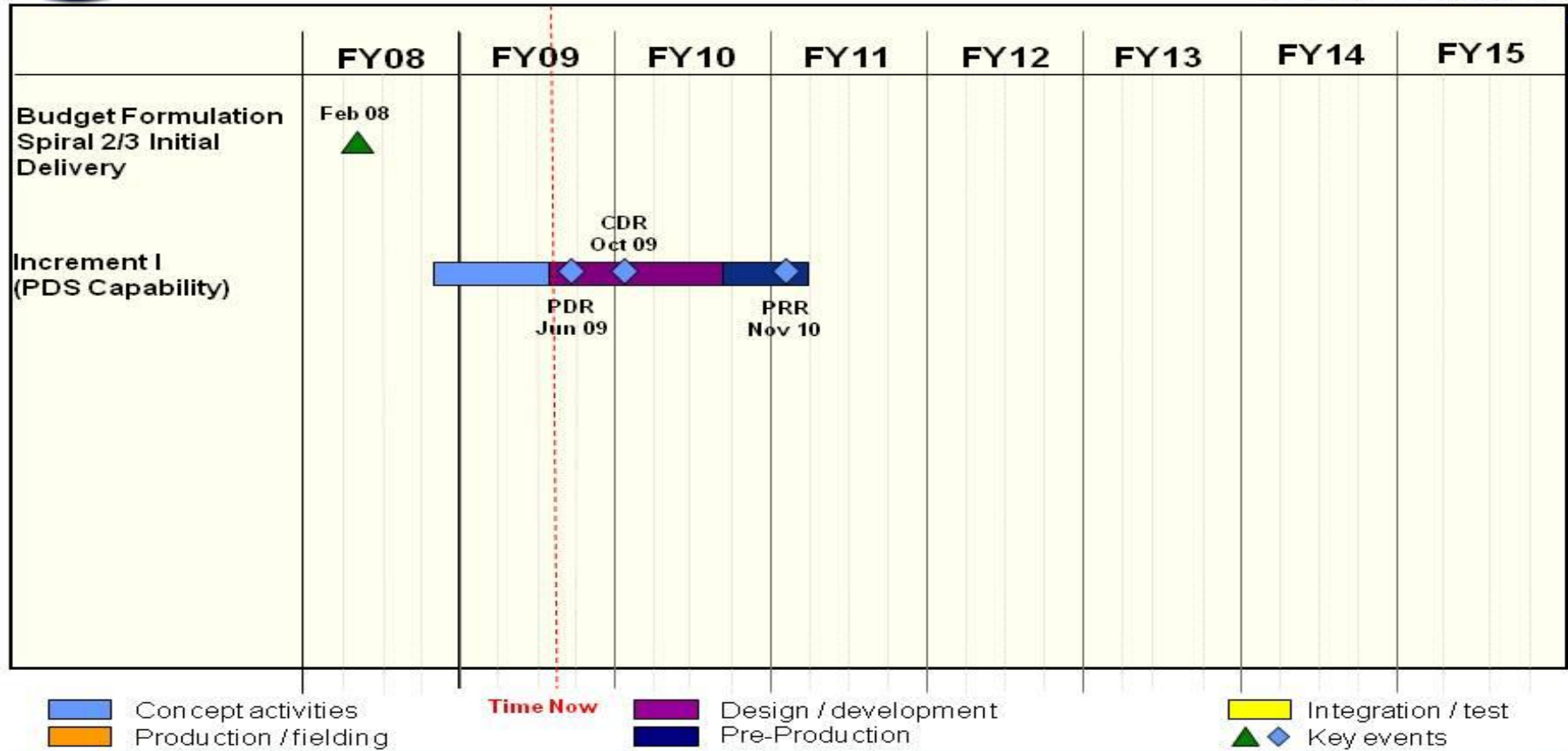
BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0901538F Financial Management Information Systems (FMIS)

PROJECT NUMBER AND TITLE  
5036 Financial Information Resource System (FIRST)



**FIRST  
Schedule**



**PB10 R-Docs**

Depicted by in stallation/production flow

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Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0901538F Financial Management Information Systems (FMIS)

PROJECT NUMBER AND TITLE

5036 Financial Information Resource System (FIRST)

(U) Schedule Profile

FY 2008

FY 2009

FY 2010

(U) Budget Formulation Spiral 2/3 Initial Release

2Q

(U) Increment I (PDS) Preliminary Design Review (PDR)

3Q

(U) Increment I (PDS) Critical Design Review (CDR)

1Q

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>					PE NUMBER AND TITLE <b>0901538F Financial Management Information Systems (FMIS)</b>			PROJECT NUMBER AND TITLE <b>5179 Defense Enterprise Accounting Management System - AF (DEAMS)</b>		
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Cost (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5179 Defense Enterprise Accounting Management System - AF (DEAMS)	20.263	12.291	43.881	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

Defense Enterprise Accounting Management System (DEAMS) is a commercial-off-the-shelf (COTS) based software configuration effort that will provide a modern accounting and finance system. DEAMS will replace existing accounting and finance legacy systems to provide core funds execution management functions consistent with financial management laws, regulations and policy, general ledger, funds management, payments, receivables, cost and revenues, and fiduciary reporting. The AF increment will build on a USTRANSCOM technology demonstration to include AF investment funding, commitment accounting, cost accounting, Foreign Military Sales (FMS) accounting and contingency operations management. DEAMS will be compliant with the Clinger-Cohen Act, Business Enterprise Architecture (BEA), and integrate into Global Combat Support System-Air Force (GCSS-AF). Activities also include studies and analysis to support both current program planning and execution and future program planning.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) DEAMS Application Development and Test for AF Increment Capability (includes GCSS-AF/DISA hardware)	0.407	0.122	3.977
(U) Integration/Support/Analysis (Includes Independent Verification and Validation (IV&V), Responsible Test Organization (RTO), Capabilities Integration Environment (CIE), Functional Management Office Support, MITRE and ETASS).	14.952	10.569	36.904
(U) Program Management Office Support (includes SCS, PASS, Travel and GPC)	4.904	1.600	3.000
(U) Total Cost	20.263	12.291	43.881

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost to Complete</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>		
(U) Transportation Working Capital Fund (TWCF)	14.140	10.070	17.290	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
(U) 3400 (PE 38610F)	1.920	0.459	0.400	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
(U) 3080 (PE 91538F)	0.000	1.507	16.718	0.000	0.000	0.000	0.000	0.000	Continuing	TBD

**(U) D. Acquisition Strategy**

The DEAMS program will execute an incremental delivery of COTS-based accounting and financial management capabilities and subsume non-CFO compliant legacy functionality as capability is delivered. Due to solution complexity, the Program Office is investigating Cost Plus and Firm Fixed Price contract opportunities, subject

**Exhibit R-2a, RDT&E Project Justification**

DATE

**May 2009**

BUDGET ACTIVITY

**07 Operational System Development**

PE NUMBER AND TITLE

**0901538F Financial Management  
Information Systems (FMIS)**

PROJECT NUMBER AND TITLE

**5179 Defense Enterprise Accounting  
Management System - AF (DEAMS)**

to Milestone Decision Authority approval, which allow for equitable and sensible allocation of risk between the Government and the contractor.



UNCLASSIFIED

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0901538F Financial Management Information Systems (FMIS)</b>	<b>PROJECT NUMBER AND TITLE</b> <b>5179 Defense Enterprise Accounting Management System - AF (DEAMS)</b>
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(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2008 Cost</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>FY 2010 Cost</u>	<u>FY 2010 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> DEAMS Application Development and Test for AF Increment Capability GCSS/DISA Support	Various	Various	1.495	0.340	Feb-08	1.202	Nov-08	9.514	Nov-09	Continuing	TBD	TBD
	MIPR	754 ELSG, Gunter AFB, AL	1.001	0.746	Oct-07	1.178	Oct-08	9.700	Oct-09	Continuing	TBD	TBD
Subtotal Product Development Remarks:			2.496	1.086		2.380		19.214		Continuing	TBD	TBD
(U) <u>Test &amp; Evaluation</u> Capabilities Integration Environment (CIE)	MIPR	754 ELSG, Gunter AFB, AL	0.403	0.803	Dec-07	0.418	Dec-08	0.629	Dec-09	Continuing	TBD	TBD
Responsible Test Organization (RTO)	MIPR	754 ELSG, Gunter AFB, AL	0.509	0.246	Dec-07	0.081	Dec-08	0.340	Dec-09	Continuing	TBD	TBD
Joint Interoperability Test Center (JITC)	MIPR	JITC, Fort Huachuca, AZ	0.163	0.650	Dec-07	0.000	Dec-08	0.155	Oct-09	Continuing	TBD	TBD
Air Force Operational Test & Evaluation Center (AFOTEC)	MIPR	AFOTEC, Kirtland AFB, NM	0.105	0.112	Oct-07	0.230	Oct-08	0.130	Oct-09	Continuing	TBD	TBD
Independent Verification and Validation (IV&V)	C/T&M	CACI, Fairborn OH	2.097	1.678	Nov-07	0.000	Nov-08	1.500	Nov-09	Continuing	TBD	TBD
Subtotal Test & Evaluation Remarks:			3.277	3.489		0.729		2.754		Continuing	TBD	TBD
(U) <u>Program Management Activities</u> A&AS Support (ETASS, Oracle)	C/LOE	Various	5.611	4.446	Dec-07	4.100	Dec-08	3.705	Dec-09	Continuing	TBD	TBD
Program Office Support (PASS, SCS, FTA)	Various	Various	0.625	0.320	Oct-07	0.217	Oct-08	2.694	Dec-09	Continuing	TBD	TBD
Functional Management Office Support (Change Management, Enterprise Resource Planning, Functional & Acquisition Support, Functional Test Center, Facilities, Strategic Communications)	Various	Various		8.638	Oct-07	4.390	Oct-08	14.298	Oct-09	Continuing	TBD	TBD
MITRE	MIPR	MITRE, FFRDC, Hanscom AFB, MA	1.513	2.284	Nov-07	0.475	Nov-08	1.216	Nov-09	Continuing	TBD	TBD
Subtotal Program Management Activities Remarks:			7.749	15.688		9.182		21.913		Continuing	TBD	TBD
(U) Total Cost			13.522	20.263		12.291		43.881		Continuing	TBD	TBD

R-1 Line Item No. 242

Page-11 of 13

Project 5179

Exhibit R-3 (PE 0901538F)

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

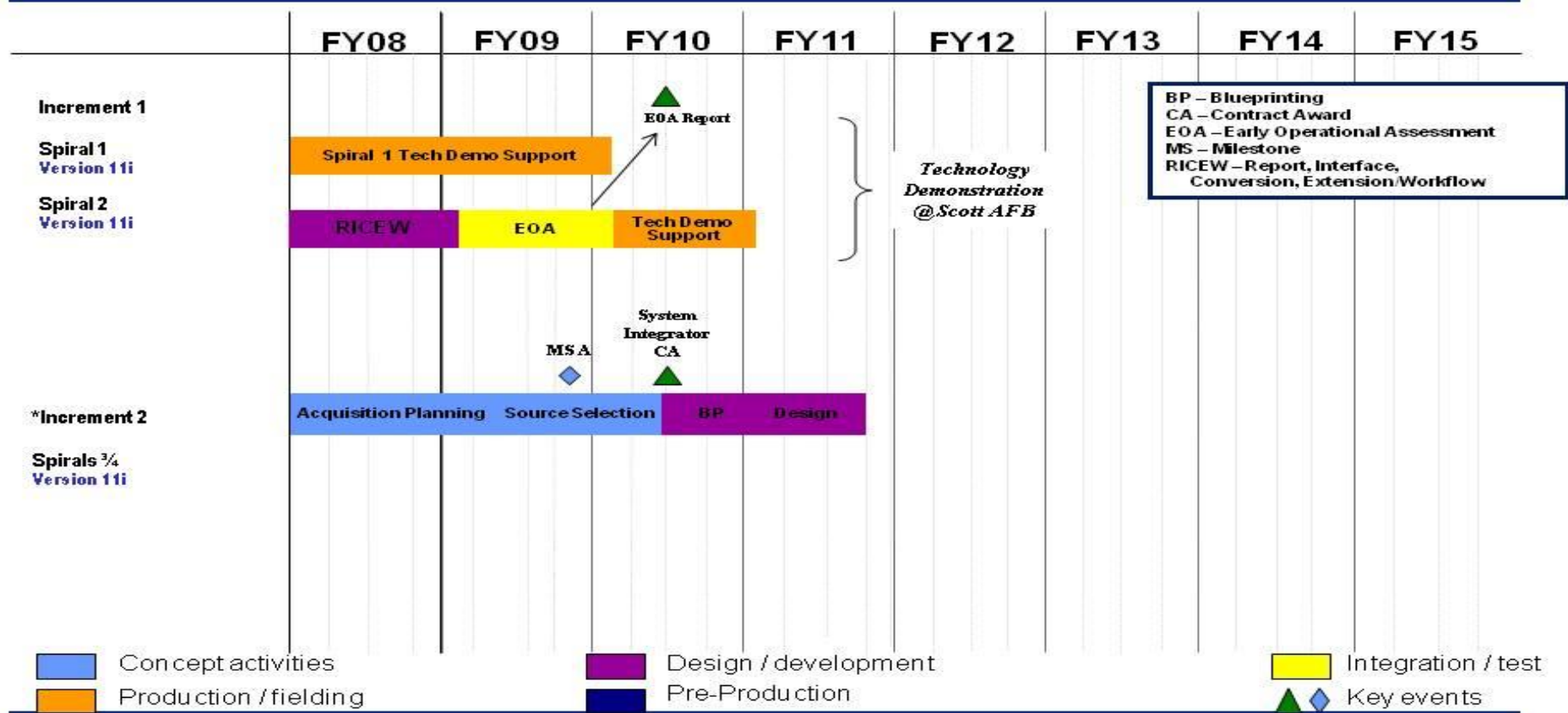
BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0901538F Financial Management Information Systems (FMIS)

PROJECT NUMBER AND TITLE  
5179 Defense Enterprise Accounting Management System - AF (DEAMS)



# DEAMS Schedule



BP - Blueprinting  
CA - Contract Award  
EOA - Early Operational Assessment  
MS - Milestone  
RICEW - Report, Interface, Conversion, Extension/Workflow

Technology Demonstration @ Scott AFB

PB10 R-Docs

\*Fact of Life - Increment 2 includes Spiral 3

Depicted by installation/production flow

1

Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0901538F Financial Management Information Systems (FMIS)

PROJECT NUMBER AND TITLE

5179 Defense Enterprise Accounting Management System - AF (DEAMS)

(U) Schedule Profile

FY 2008

FY 2009

FY 2010

(U) AF Inc 2 MS A

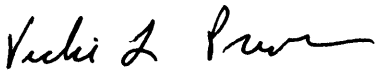
4Q


(U) AF Inc 2 System Integrator Contract Award


3Q

(U) AF Inc 2 System Spiral 3/4 Blueprinting

3-4Q

1. COMPONENT AF (AFMC)	FY 2009 MILITARY CONSTRUCTION PROJECT DATA			2. DATE 27 JAN 09	
3. INSTALLATION AND LOCATION EGLIN AIR FORCE BASE, FLORIDA			4. PROJECT TITLE CONSTRUCT REMOTE CONTROL AND MOBILE TARGET SUPPORT FACILITY		
5. PROGRAM ELEMENT 65976	6. CATEGORY CODE 315237	7. PROJECT NUMBER FTFA 06-1240	8. PROJECT COST (\$000) EEIC 529: 730.0		
9. COST ESTIMATES					
ITEM		U/M	QUANTITY	UNIT COST	COST (\$000)
Construct Facility Total Cost		SF	5,000	146.00	730.0 730.0
10. DESCRIPTION OF PROPOSED CONSTRUCTION					
Construct a new remote control and mobile target support building consisting of office, electronics/mechanical shop, bathroom, storage/utility and drive through maintenance/equipment installation areas.					
<u>REQUIREMENT:</u>					
<u>PROJECT:</u> Project provides for constructing a Remote Control Target Support Facility.					
<u>REQUIREMENT:</u> Work is necessary to provide an adequate facility for this function.					
<u>CURRENT SITUATION:</u> This new building will replace Bldgs 461, 462 and 463. These are old buildings in various states of deterioration, beyond economical repair, and are not well suited for the current and future mission.					
<u>APPROVED:</u>					
					
VICKI L. PREACHER, P.E. Deputy Base Civil Engineer					

1. COMPONENT AF (AFMC)	FY 2009 MILITARY CONSTRUCTION PROJECT DATA			2. DATE 27 JAN 09	
3. INSTALLATION AND LOCATION EGLIN AIR FORCE BASE, FLORIDA			4. PROJECT TITLE CONSTRUCT SPILL BERM TEST CELL		
5. PROGRAM ELEMENT 65976	6. CATEGORY CODE 116665	7. PROJECT NUMBER FTFA 05-1164	8. PROJECT COST (\$000) EEIC 529: 3.0		
9. COST ESTIMATES					
ITEM		U/M	QUANTITY	UNIT COST	COST (\$000)
Construct Berm Total Cost		LS			3.0 3.0
10. DESCRIPTION OF PROPOSED WORK					
Build a berm connected to the fuel tank berm to be suitable for a 250 gallon bowser. Height and width will be determined. Need a ramp to pull the bowser in and out for emptying fuel.					
<u>REQUIREMENT:</u>					
<u>PROJECT:</u> Provides for constructing a spill berm at the Test Cell (Bldg 141).					
<u>REQUIREMENT:</u> Eglin is required to provide secondary containment for bowser storage areas. Containment structure must be sufficient to contain the capacity of the largest compartment of the bowser and to contain precipitation due to weather (40CFR/112.8c(11)).					
<u>CURRENT SITUATION:</u> Area does not have berms at present.					
<u>APPROVED:</u>					
					
VICKI L. PREACHER, P.E. Deputy Base Civil Engineer					

<b>1. COMPONENT</b> AF (AFMC)		<b>FY 2008 MILITARY CONSTRUCTION PROJECT DATA</b>		<b>2. DATE</b> 17 JUN 08	
<b>3. INSTALLATION AND LOCATION</b> EGLIN AIR FORCE BASE, FLORIDA			<b>4. PROJECT TITLE</b> CONSTRUCT STORAGE FACILITY		
<b>5. PROGRAM ELEMENT</b> 65976F		<b>6. CATEGORY CODE</b>	<b>7. PROJECT NUMBER</b> FTFA 07-1082	<b>8. PROJECT COST (\$000)</b> EEIC 529: 725.0	
<b>9. COST ESTIMATES</b>					
<b>ITEM</b>		<b>U/M</b>	<b>QUANTITY</b>	<b>UNIT COST</b>	<b>COST (\$000)</b>
Construct Storage Facility Total Cost		LS			725.0 725.0
<b>10. DESCRIPTION OF PROPOSED CONSTRUCTION</b>					
<p>Construct one 100 ft x 100 ft steel framed warehouse building with a steel roof panels, steel siding panels, and foundation on the 1217 munitions storage pad. The building will not be insulated nor will any mechanical equipment be located in the building. The building will each have a total of 2 roll-up doors and 2 man doors. These doors will be located on both gable ends of the building with the roll-up door centered at the center of the building. It is assumed an 8 inch reinforced concrete slab supported by compacted base material will be provided with the building to allow fork lifts and tractor trailers to handle the stored material. The buildings will have a 25 foot eve height and be designed for the local environmental loading including a 140 mph wind load as specified by the International Building Code and ASCE 7. Electrical power will be supplied to the building from an existing pole located near pad 1217. It is assumed either one new pole mounted transformer will supply the necessary power. Interior lighting will provide a minimum lighting level of 20 foot candles utilizing energy efficient fixtures. Lightning protection and grounding will be installed to meet the requirements of the NFPA 780 and the appropriate IAW Air Force and DoD explosive safety requirements. Existing above grade steel portion of the 1218 building will be torn down and all debris will be separated and placed in roll off containers and legally disposed of in the appropriate manner. Potable water, sewer connections and fire suppression will not be provided inside the building.</p> <p><b>REQUIREMENT:</b>  <b>PROJECT:</b> Provides for constructing a storage facility in the Munitions Area.  <b>REQUIREMENT:</b> This facility is required to store inert assets, assets in cardboard and wooden containers, and pre-assembled inert munitions assets to protect the assets from the Florida elements.  <b>CURRENT SITUATION:</b> Many materials are currently stored unprotected outside. Other items are storage in a 1950's vintage Quonset Hut, which is a maintenance problem and requires repair after every hurricane. The facility is old and needs replacement.</p> <p><b>APPROVED:</b></p> <p style="text-align: center;"></p> <p>VICKI L. PREACHER, P.E. Deputy Base Civil Engineer</p>					

**UNCLASSIFIED**

**DEPARTMENT OF THE AIR FORCE**

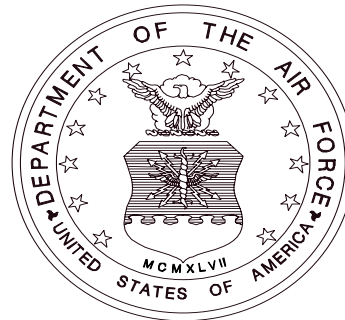
**FY 2010 OVERSEAS CONTINGENCY**

**OPERATIONS REQUEST**

**RESEARCH, DEVELOPMENT, TEST AND EVALUATION (RDT&E)**

**DESCRIPTIVE SUMMARIES, BUDGET ACTIVITY 7**

**MAY 2009**



**UNCLASSIFIED**





**FY 2010 Overseas Contingency Operations Supplemental - RDT&E R-1 Exhibit**

<b>Appropriation</b>	<b>BA</b>	<b>R-1 Line</b>	<b>Program Element</b>	<b>Line Item Name</b>	<b>FY10 OCO (\$000)</b>
RDT&E	07	128	0205219F	MQ-9 Development and Fielding	\$ 1,400
RDT&E	07	149	0207423F	Advance Communication Systems	\$ 9,375
RDT&E	07	206	0305219F	Predator Development/Fielding	\$ 1,400
RDT&E	07	XX	Classified	Classified	\$ 17,111
<b>Total RDT&amp;E</b>					<b>\$ 29,286</b>

**PROGRAM ELEMENT COMPARISON SUMMARY**  
**INTRODUCTION AND EXPLANATION OF CONTENTS**

<b>Program Element</b>	<b>Remarks</b>
BUDGET ACTIVITY 7: OPERATIONAL SYSTEM DEVELOPMENT	

## TABLE OF CONTENTS

<b>R-1#</b>	<b>PE</b>	<b>PROGRAM ELEMENT TITLE</b>	<b>PAGE</b>
#7 - Operational System Development			
128	0205219F	MQ-9 Development and Fielding	1
149	0207423F	Advanced Communications Systems	6
206	0305219F	PREDATOR DEVELOPMENT/FIELDING	12

## ALPHABETICAL LISTING

<b>PROGRAM ELEMENT TITLE</b>	<b>PE</b>	<b>PAGE</b>
Advanced Communications Systems	0207423F	6
MQ-9 Development and Fielding	0205219F	1
PREDATOR DEVELOPMENT/FIELDING	0305219F	12

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PE NUMBER: 0205219F  
 PE TITLE: MQ-9 Development and Fielding

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>May 2009</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0205219F MQ-9 Development and Fielding</b>
--	---

Cost (\$ in Millions)	FY08 SUPP Actual	FY09 Bridge Estimate	FY09 OCOSR Pending Estimate	FY10 OCOR Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.000	0.000	0.000	1.400	0.000	0.000
5246 MQ-9 Development and Fielding	0.000	0.000	0.000	1.400	0.000	0.000

**(U) A. Mission Description and Budget Item Justification**

FY10 OCOR  
\$1.4M

MQ-9 Reaper is a medium altitude long endurance unmanned aerial system currently deployed to provide full-motion video for situational awareness to ground forces and to detect and directly attack time sensitive high value targets. This project integrates a quick reaction capability improvement to provide an encrypted datalink that will allow ground forces to continue to receive Reaper full motion video while insuring the data cannot be intercepted and exploited by enemy forces.

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>				PE NUMBER AND TITLE <b>0205219F MQ-9 Development and Fielding</b>		PROJECT NUMBER AND TITLE <b>5246 MQ-9 Development and Fielding</b>	
Cost (\$ in Millions)	FY08 SUPP Actual	FY09 Bridge Estimate	FY09 OCOSR Pending Estimate	FY10 OCOR Estimate	Cost to Complete	Total	
5246 MQ-9 Development and Fielding	0.000	0.000	0.000	1.400	0.000	0.000	
Quantity of RDT&E Articles	0	0	0	0			

**(U) A. Mission Description and Budget Item Justification**

FY10 OCOR  
\$1.4M

MQ-9 Reaper is a medium altitude long endurance unmanned aerial system currently deployed to provide full-motion video for situational awareness to ground forces and to detect and directly attack time sensitive high value targets. This project integrates a quick reaction capability improvement to provide an encrypted datalink that will allow ground forces to continue to receive Reaper full motion video while insuring the data cannot be intercepted and exploited by enemy forces.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY08 SUPP</u>	<u>FY09 Bridge</u>	<u>FY09 OCOSR</u>	<u>FY10 OCOR</u>
(U) Integrate encrypted datalink			Pending	1.400
(U) Total Cost	0.000	0.000	0.000	1.400

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY08 SUPP Actual</u>	<u>FY09 Bridge</u>	<u>FY09 OCOSR</u>	<u>FY10 OCOR</u>	<u>Cost to Complete</u>	<u>Total Cost</u>
(U) Aircraft Modification, AF (PE 0205219F)		Estimate	Pending Estimate	12.000	Continuing	TBD

**(U) D. Acquisition Strategy**

Commercial off-the-shelf.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY		PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE			
<b>07 Operational System Development</b>		<b>0205219F MQ-9 Development and Fielding</b>				<b>5246 MQ-9 Development and Fielding</b>			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY08 SUPP Cost</u>	<u>FY09 Bridge Cost</u>	<u>FY09 OCOSR Pending Award Date</u>	<u>FY10 OCOR Cost</u>	<u>Cost to Complete Award Date</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>									
Datalink Integration	SS/CPIF	GA-ASI, Rancho Bernardo CA				1.400	Continuing	TBD	TBD
Subtotal Product Development			0.000	0.000		1.400	Continuing	TBD	TBD
Remarks:									
(U) <u>Support</u>									
Subtotal Support			0.000	0.000		0.000	0.000	0.000	0.000
Remarks:									
(U) <u>Test &amp; Evaluation</u>									
Subtotal Test & Evaluation			0.000	0.000		0.000	0.000	0.000	0.000
Remarks:									
(U) <u>Management</u>									
Subtotal Management			0.000	0.000		0.000	0.000	0.000	0.000
Remarks:									
(U) Total Cost			0.000	0.000		1.400	Continuing	TBD	TBD

Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0205219F MQ-9 Development and Fielding

PROJECT NUMBER AND TITLE

5246 MQ-9 Development and Fielding

(U) Schedule Profile

FY08 SUPP

FY09 Bridge FY09 OCOSR Pending

FY10 OCOR

(U) Integrate Encrypted Datalink

2Q



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PE NUMBER: 0207423F  
 PE TITLE: Advanced Communications Systems

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>May 2009</b>
---	-------------------------

BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0207423F Advanced Communications Systems</b>
---	--

Cost (\$ in Millions)	FY08 SUPP Actual	FY09 Bridge Estimate	FY09 OCOSR Pending Estimate	FY10 OCOR Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.000	0.000	0.000	9.375	0.000	9.375
4931 Eagle Vision	0.000	0.000	0.000	9.375	0.000	9.375

**(U) A. Mission Description and Budget Item Justification**

FY 10 OCOR - \$9.375M: Develops a reconfigured rugged/mountable ROVER with upgraded line-of-sight (LOS) Type I encrypted full motion video (FMV) capability. Replaces approx. 2,500 ROVER IV's utilized in Theater Operations Centers (TOCs) and vehicle ops. CENTCOM Urgent Need/Supports OSD (AT&L) Intelligence Surveillance Reconnaissance Task Force FMV enhancements directed/initiated during FY09. Develops directional tracking antenna capabilities for integration on more than 3,300 fielded ROVER's. Enhances line-of-sight (LOS) Type I encrypted full motion video (FMV) capability via point-to-point broadcast while doubling FMV signal transmission range. Supports CENTCOM Urgent Need & OSD (AT&L) Intelligence Surveillance Reconnaissance Task Force FMV enhancements directed/initiated during FY09. Develops/tests a light-weight, vest-fitted ROVER V configuration. Capability reduces comm equip and payload on ground/tactical warfighters. Supports CENTCOM Urgent Need.

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**May 2009**

BUDGET ACTIVITY <b>07 Operational System Development</b>				PE NUMBER AND TITLE <b>0207423F Advanced Communications Systems</b>		PROJECT NUMBER AND TITLE <b>4931 Eagle Vision</b>	
Cost (\$ in Millions)	FY08 SUPP Actual	FY09 Bridge Estimate	FY09 OCOSR Pending Estimate	FY10 OCOR Estimate	Cost to Complete	Total	
4931 Eagle Vision	0.000	0.000	0.000	9.375	0.000	9.375	
Quantity of RDT&E Articles	0	0	0	0			

Current ROVER requirements were inadvertently placed in the wrong PE and should be moved to PE 0207277F.

**(U) A. Mission Description and Budget Item Justification**

FY 10 OCOR - \$9.375M: Develops a reconfigured rugged/mountable ROVER with upgraded line-of-sight (LOS) Type I encrypted full motion video (FMV) capability. Replaces approx. 2,500 ROVER IV's utilized in Theater Operations Centers (TOCs) and vehicle ops. CENTCOM Urgent Need/Supports OSD (AT&L) Intelligence Surveillance Reconnaissance Task Force FMV enhancements directed/initiated during FY09. Develops directional tracking antenna capabilities for integration on more than 3,300 fielded ROVER's. Enhances line-of-sight (LOS) Type I encrypted full motion video (FMV) capability via point-to-point broadcast while doubling FMV signal transmission range. Supports CENTCOM Urgent Need & OSD (AT&L) Intelligence Surveillance Reconnaissance Task Force FMV enhancements directed/initiated during FY09. Develops/tests a light-weight, vest-fitted ROVER V configuration. Capability reduces comm equip and payload on ground/tactical warfighters. Supports CENTCOM Urgent Need.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY08 SUPP</u>	<u>FY09 Bridge</u>	<u>FY09 OCOSR</u> Pending	<u>FY10 OCOR</u>
(U) Develops a reconfigured rugged/mountable ROVER				4.700
(U) Develops directional tracking antenna capabilities				4.300
(U) Develops/tests a light-weight, vest-fitted ROVER V configuration.				0.375
(U) Total Cost	0.000	0.000	0.000	9.375

**(U) C. Other Program Funding Summary (\$ in Millions)**

	<u>FY08 SUPP Actual</u>	<u>FY09 Bridge</u> Estimate	<u>FY09 OCOSR</u> Pending Estimate	<u>FY10 OCOR</u> Estimate	<u>Cost to Complete</u>	<u>Total Cost</u>
(U) Advanced Comm System Other Procurement, AF PE 0207423F	10.500					

**(U) D. Acquisition Strategy**

Air Force ROVER uses an approved Sole Source 645 AESG Justification and Approval (J&A) utilizing an existing Basic Order Agreement (BOA) with L3 Communications West.

UNCLASSIFIED

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

BUDGET ACTIVITY		PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE			
<b>07 Operational System Development</b>		<b>0207423F Advanced Communications Systems</b>				<b>4931 Eagle Vision</b>			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY08 SUPP Cost</u>	<u>FY09 Bridge Cost</u>	<u>FY09 OCOSR Pending Award Date</u>	<u>FY10 OCOR Cost</u>	<u>Cost to Complete Award Date</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> Sys Engr., Planng, & Integration Subtotal Product Development Remarks:	SS/FFP		0.000	0.000		9.375	Continuing Continuing	TBD TBD	TBD TBD
(U) <u>Support</u>  Subtotal Support Remarks:			0.000	0.000		0.000	0.000	0.000	0.000
(U) <u>Test &amp; Evaluation</u>  Subtotal Test & Evaluation Remarks:			0.000	0.000		0.000	0.000	0.000	0.000
(U) <u>Management</u>  Subtotal Management Remarks:			0.000	0.000		0.000	0.000	0.000	0.000
(U) Total Cost			0.000	0.000		9.375	Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

May 2009

BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0207423F Advanced Communications Systems

PROJECT NUMBER AND TITLE  
4931 Eagle Vision

R-4: Schedule Profile.

Air Force ROVER FMV Encryption Development and Integration												
	FY08				FY09				FY10			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
Contract Award										▲		
Sys Eng, Plnng, Intgr.										▲		▲

Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207423F Advanced Communications Systems

PROJECT NUMBER AND TITLE

4931 Eagle Vision

(U) Schedule Profile

FY08 SUPP

FY09 Bridge FY09 OCOSR Pending

FY10 OCOR

(U) System Engineering Planning & Integration

1-4Q

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**UNCLASSIFIED**

PE NUMBER: 0305219F  
 PE TITLE: PREDATOR DEVELOPMENT/FIELDING

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>May 2009</b>
---	-------------------------

BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0305219F PREDATOR DEVELOPMENT/FIELDING</b>
---	--

Cost (\$ in Millions)	FY08 SUPP Actual	FY09 Bridge Estimate	FY09 OCOSR Pending Estimate	FY10 OCOR Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	0.000	0.000	0.000	1.400	Continuing	TBD
5143 Predator	0.000	0.000	0.000	1.400	Continuing	TBD

**(U) A. Mission Description and Budget Item Justification**

FY10 OCOR  
 \$1.4M

MQ-1 Predator is a medium altitude long endurance unmanned aerial system currently deployed to provide full-motion video for situational awareness to ground forces and to detect and directly attack time sensitive high value targets. This project integrates a quick reaction capability improvement to provide an encrypted datalink that will allow ground forces to continue to receive Predator full motion video while insuring the data cannot be intercepted and exploited by enemy forces.

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>	DATE <b>May 2009</b>
--	-------------------------

BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0305219F PREDATOR DEVELOPMENT/FIELDING</b>	PROJECT NUMBER AND TITLE <b>5143 Predator</b>
---	--	--

Cost (\$ in Millions)	FY08 SUPP Actual	FY09 Bridge Estimate	FY09 OCOSR Pending Estimate	FY10 OCOR Estimate	Cost to Complete	Total
5143 Predator	0.000	0.000	0.000	1.400	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0		

(U) **A. Mission Description and Budget Item Justification**

FY10 OCOR  
\$1.4M

MQ-1 Predator is a medium altitude long endurance unmanned aerial system currently deployed to provide full-motion video for situational awareness to ground forces and to detect and directly attack time sensitive high value targets. This project integrates a quick reaction capability improvement to provide an encrypted datalink that will allow ground forces to continue to receive Predator full motion video while insuring the data cannot be intercepted and exploited by enemy forces.

(U) **B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY08 SUPP</u>	<u>FY09 Bridge</u>	<u>FY09 OCOSR Pending</u>	<u>FY10 OCOR</u>
(U) Integrate encrypted datalink				1.400
(U) Total Cost	0.000	0.000	0.000	1.400

(U) **C. Other Program Funding Summary (\$ in Millions)**

	<u>FY08 SUPP Actual</u>	<u>FY09 Bridge Estimate</u>	<u>FY09 OCOSR Pending Estimate</u>	<u>FY10 OCOR Estimate</u>	<u>Cost to Complete</u>	<u>Total Cost</u>
(U) Aircraft Modification, AF (PE 0305219F)			17.000		Continuing	TBD

(U) **D. Acquisition Strategy**

Commercial off-the-shelf.

UNCLASSIFIED

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**May 2009**

<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0305219F PREDATOR</b> <b>DEVELOPMENT/FIELDING</b>	<b>PROJECT NUMBER AND TITLE</b> <b>5143 Predator</b>
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(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract</u> Method & Type	<u>Performing</u> Activity & Location	<u>Total</u> Prior to FY08 SUPP Cost	<u>FY09 Bridge</u> Cost	<u>FY09</u> OCOSR Pending Award Date	<u>FY10 OCOR</u> Cost	<u>Cost to</u> Complete Award Date	<u>Total Cost</u>	<u>Target Value of</u> Contract
(U) <u>Product Development</u> General Atomics ASI (GA-ASI)	SS/CPIF	GA-ASI Rancho Bernardo CA				1.400	Continuing	TBD	
Subtotal Product Development			0.000	0.000		1.400	Continuing	TBD	0.000
Remarks:									
(U) <u>Support</u>							Continuing	TBD	
Subtotal Support			0.000	0.000		0.000	Continuing	TBD	0.000
Remarks:									
(U) <u>Test &amp; Evaluation</u>							Continuing	TBD	
Subtotal Test & Evaluation			0.000	0.000		0.000	Continuing	TBD	0.000
Remarks:									
(U) Total Cost			0.000	0.000		1.400	Continuing	TBD	0.000

Exhibit R-4a, RDT&E Schedule Detail

DATE

May 2009

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305219F PREDATOR  
DEVELOPMENT/FIELDING

PROJECT NUMBER AND TITLE

5143 Predator

(U) Schedule Profile

FY08 SUPP

FY09 Bridge FY09 OCOSR Pending

FY10 OCOR

(U) Integrate Encrypted Datalink

2Q