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**Department of Defense
Fiscal Year (FY) 2017 President's Budget Submission**

February 2016



Air Force

Justification Book Volume 3b of 3

Research, Development, Test & Evaluation, Air Force

Vol-III Part 2

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Air Force • President's Budget Submission FY 2017 • RDT&E Program

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 Total Obligational Authority
 (Dollars in Thousands)

27 Jan 2016

Appropriation -----	FY 2015 (Base & OCO)	FY 2016 Base Enacted	FY 2016 OCO Enacted	FY 2016 Total Enacted	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Research, Development, Test & Eval, AF	23,619,928	25,194,457	17,100	25,211,557	28,112,251	32,905	28,145,156
Total Research, Development, Test & Evaluation	23,619,928	25,194,457	17,100	25,211,557	28,112,251	32,905	28,145,156

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Summary Recap of Budget Activities -----	FY 2015 (Base & OCO)	FY 2016 Base Enacted	FY 2016 OCO Enacted	FY 2016 Total Enacted	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Basic Research	538,586	530,253		530,253	500,024		500,024
Applied Research	1,090,419	1,240,141		1,240,141	1,260,152		1,260,152
Advanced Technology Development	606,365	710,377		710,377	725,805		725,805
Advanced Component Development & Prototypes	1,362,546	1,561,351		1,561,351	2,847,833		2,847,833
System Development & Demonstration	3,516,726	3,907,650		3,907,650	4,075,804	425	4,076,229
Management Support	1,495,139	1,184,667		1,184,667	1,245,577		1,245,577
Operational Systems Development	15,010,147	16,060,018	17,100	16,077,118	17,457,056	32,480	17,489,536
Total Research, Development, Test & Evaluation	23,619,928	25,194,457	17,100	25,211,557	28,112,251	32,905	28,145,156
Summary Recap of FYDP Programs -----							
Strategic Forces	458,400	606,099		606,099	636,723		636,723
General Purpose Forces	1,504,009	1,608,728	300	1,609,028	2,203,903		2,203,903
Intelligence and Communications	1,634,882	1,568,630		1,568,630	1,850,451	4,715	1,855,166
Mobility Forces	223,007	303,822		303,822	505,020		505,020
Research and Development	8,505,587	8,808,727		8,808,727	9,680,261	425	9,680,686
Central Supply and Maintenance	89,056	111,467		111,467	105,997		105,997
Training Medical and Other	2,538	3,272		3,272	3,114		3,114
Administration and Associated Activities	108,250	110,346		110,346	30,441		30,441
Support of Other Nations	3,790	2,315		2,315	4,784		4,784
Classified Programs	11,090,409	12,071,051	16,800	12,087,851	13,091,557	27,765	13,119,322
Total Research, Development, Test & Evaluation	23,619,928	25,194,457	17,100	25,211,557	28,112,251	32,905	28,145,156

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Operational Systems Development	15,010,147	16,060,018	17,100	16,077,118	17,457,056	32,480	17,489,536
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Intelligence and Communications	1,634,882	1,568,630		1,568,630	1,850,451	4,715	1,855,166
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Research and Development	8,505,587	8,808,727		8,808,727	9,680,261	425	9,680,686
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Appropriation: 3600F Research, Development, Test & Eval, AF
 Program

Line No	Element Number	Item	Act	FY 2015 (Base & OCO)	FY 2016 Base Enacted	FY 2016 OCO Enacted	FY 2016 Total Enacted	FY 2017 Base	FY 2017 OCO	FY 2017 Total	S e c
1	0601102F	Defense Research Sciences	01	382,332	374,721		374,721	340,812		340,812	U
2	0601103F	University Research Initiatives	01	142,752	141,754		141,754	145,044		145,044	U
3	0601108F	High Energy Laser Research Initiatives	01	13,502	13,778		13,778	14,168		14,168	U
		Basic Research		538,586	530,253		530,253	500,024		500,024	
4	0602102F	Materials	02	114,302	133,734		133,734	126,152		126,152	U
5	0602201F	Aerospace Vehicle Technologies	02	101,053	122,969		122,969	122,831		122,831	U
6	0602202F	Human Effectiveness Applied Research	02	95,727	110,221		110,221	111,647		111,647	U
7	0602203F	Aerospace Propulsion	02	168,628	185,926		185,926	185,671		185,671	U
8	0602204F	Aerospace Sensors	02	118,654	152,175		152,175	155,174		155,174	U
9	0602601F	Space Technology	02	96,425	109,122		109,122	117,915		117,915	U
10	0602602F	Conventional Munitions	02	86,328	99,851		99,851	109,649		109,649	U
11	0602605F	Directed Energy Technology	02	126,189	115,105		115,105	127,163		127,163	U
12	0602788F	Dominant Information Sciences and Methods	02	146,951	169,183		169,183	161,650		161,650	U
13	0602890F	High Energy Laser Research	02	36,162	41,855		41,855	42,300		42,300	U
		Applied Research		1,090,419	1,240,141		1,240,141	1,260,152		1,260,152	
14	0603112F	Advanced Materials for Weapon Systems	03	38,262	46,665		46,665	35,137		35,137	U
15	0603199F	Sustainment Science and Technology (S&T)	03	14,900	18,378		18,378	20,636		20,636	U
16	0603203F	Advanced Aerospace Sensors	03	34,100	42,001		42,001	40,945		40,945	U
17	0603211F	Aerospace Technology Dev/Demo	03	86,275	100,622		100,622	130,950		130,950	U

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18	0603216F	Aerospace Propulsion and Power Technology	03	126,729	178,594		178,594	94,594		94,594	U
19	0603270F	Electronic Combat Technology	03	45,548	46,946		46,946	58,250		58,250	U
20	0603401F	Advanced Spacecraft Technology	03	65,207	61,813		61,813	61,593		61,593	U
21	0603444F	Maui Space Surveillance System (MSSS)	03	13,185	12,853		12,853	11,681		11,681	U
22	0603456F	Human Effectiveness Advanced Technology Development	03	21,142	25,448		25,448	26,492		26,492	U
23	0603601F	Conventional Weapons Technology	03	41,385	43,036		43,036	102,009		102,009	U
24	0603605F	Advanced Weapons Technology	03	33,681	35,195		35,195	39,064		39,064	U
25	0603680F	Manufacturing Technology Program	03	51,613	52,630		52,630	46,344		46,344	U
26	0603788F	Battlespace Knowledge Development and Demonstration	03	34,338	46,196		46,196	58,110		58,110	U
		Advanced Technology Development		606,365	710,377		710,377	725,805		725,805	
27	0603260F	Intelligence Advanced Development	04	5,408	5,032		5,032	5,598		5,598	U
28	0603438F	Space Control Technology	04	5,799	4,057		4,057	7,534		7,534	U
29	0603742F	Combat Identification Technology	04	10,606	21,790		21,790	24,418		24,418	U
30	0603790F	NATO Research and Development	04	2,309	4,736		4,736	4,333		4,333	U
31	0603791F	International Space Cooperative R&D	04	806							U
32	0603830F	Space Security and Defense Program	04	30,592	30,771		30,771	32,399		32,399	U
33	0603851F	Intercontinental Ballistic Missile - Dem/Val	04	30,388	39,765		39,765	108,663		108,663	U
34	0603859F	Pollution Prevention - Dem/Val	04	965							U
35	0604015F	Long Range Strike - Bomber	04	883,363	736,228		736,228	1,358,309		1,358,309	U

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36	0604257F	Advanced Technology and Sensors	04					34,818		34,818	U
37	0604317F	Technology Transfer	04	4,683	7,612		7,612	3,368		3,368	U
38	0604327F	Hard and Deeply Buried Target Defeat System (HDBTDS) Program	04		54,637		54,637	74,308		74,308	U
39	0604422F	Weather System Follow-on	04	30,890	56,044		56,044	118,953		118,953	U
40	0604425F	Space Situation Awareness Systems	04					9,901		9,901	U
41	0604776F	Deployment & Distribution Enterprise R&D	04					25,890		25,890	U
42	0604857F	Operationally Responsive Space	04	20,000	18,437		18,437	7,921		7,921	U
43	0604858F	Tech Transition Program	04	79,887	266,514		266,514	347,304		347,304	U
44	0605230F	Ground Based Strategic Deterrent	04		75,166		75,166	113,919		113,919	U
45	0201184F	Counter Narco-Terrorism Program Office	04	650							U
46	0207110F	Next Generation Air Dominance	04	18,224	8,830		8,830	20,595		20,595	U
47	0207455F	Three Dimensional Long-Range Radar (3DELRR)	04	85,832	8,139		8,139	49,491		49,491	U
48	0305164F	NAVSTAR Global Positioning System (User Equipment) (SPACE)	04	152,144	141,861		141,861	278,147		278,147	U
49	0305236F	Common Data Link Executive Agent (CDL EA)	04					42,338		42,338	U
50	0306250F	Cyber Operations Technology Development	04		81,732		81,732	158,002		158,002	U
51	0306415F	Enabled Cyber Activities	04					15,842		15,842	U

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52	0901410F	Contracting Information Technology System	04					5,782		5,782	U
		Advanced Component Development & Prototypes		1,362,546	1,561,351		1,561,351	2,847,833		2,847,833	
53	0604233F	Specialized Undergraduate Flight Training	05	12,903							U
54	0604270F	Electronic Warfare Development	05	7,815	843		843	12,476		12,476	U
55	0604281F	Tactical Data Networks Enterprise	05	30,282	59,996		59,996	82,380		82,380	U
56	0604287F	Physical Security Equipment	05	3,926	5,973		5,973	8,458		8,458	U
57	0604329F	Small Diameter Bomb (SDB) - EMD	05	66,374	29,083		29,083	54,838		54,838	U
58	0604421F	Counterspace Systems	05	22,654	24,134		24,134	34,394	425	34,819	U
59	0604425F	Space Situation Awareness Systems	05	9,031	29,288		29,288	23,945		23,945	U
60	0604426F	Space Fence	05	191,708	240,692		240,692	168,364		168,364	U
61	0604429F	Airborne Electronic Attack	05	26,555	8,358		8,358	9,187		9,187	U
62	0604441F	Space Based Infrared System (SBIRS) High EMD	05	308,788	291,510		291,510	181,966		181,966	U
63	0604602F	Armament/Ordnance Development	05	28,667	37,654		37,654	20,312		20,312	U
64	0604604F	Submunitions	05	2,543	2,506		2,506	2,503		2,503	U
65	0604617F	Agile Combat Support	05	41,857	56,178		56,178	53,680		53,680	U
66	0604618F	Joint Direct Attack Munition	05					9,901		9,901	U
67	0604706F	Life Support Systems	05	14,697	8,187		8,187	7,520		7,520	U
68	0604735F	Combat Training Ranges	05	9,812	11,795		11,795	77,409		77,409	U
69	0604800F	F-35 - EMD	05	566,937	586,953		586,953	450,467		450,467	U

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70	0604853F	Evolved Expendable Launch Vehicle Program (SPACE) - EMD	05	225,600	227,784		227,784	296,572		296,572	U
71	0604932F	Long Range Standoff Weapon	05	3,438	16,143		16,143	95,604		95,604	U
72	0604933F	ICBM Fuze Modernization	05	57,893	142,551		142,551	189,751		189,751	U
73	0605030F	Joint Tactical Network Center (JTNC)	05					1,131		1,131	U
74	0605213F	F-22 Modernization Increment 3.2B	05	163,877	140,640		140,640	70,290		70,290	U
75	0605214F	Ground Attack Weapons Fuze Development	05	5,177	3,598		3,598	937		937	U
76	0605221F	KC-46	05	763,224	592,364		592,364	261,724		261,724	U
77	0605223F	Advanced Pilot Training	05	8,201	10,395		10,395	12,377		12,377	U
78	0605229F	CSAR HH-60 Recapitalization	05	100,000	156,085		156,085	319,331		319,331	U
79	0605278F	HC/MC-130 Recap RDT&E	05	4,497							U
80	0605431F	Advanced EHF MILSATCOM (SPACE)	05	294,455	228,095		228,095	259,131		259,131	U
81	0605432F	Polar MILSATCOM (SPACE)	05	99,788	71,867		71,867	50,815		50,815	U
82	0605433F	Wideband Global SATCOM (SPACE)	05	28,345	52,185		52,185	41,632		41,632	U
83	0605458F	Air & Space Ops Center 10.2 RDT&E	05	83,245	47,629		47,629	28,911		28,911	U
84	0605931F	B-2 Defensive Management System	05	95,440	271,961		271,961	315,615		315,615	U
85	0101125F	Nuclear Weapons Modernization	05	148,281	212,121		212,121	137,909		137,909	U
86	0207171F	F-15 EPAWSS	05		180,681		180,681	256,669		256,669	U
87	0207701F	Full Combat Mission Training	05	8,831	18,082		18,082	12,051		12,051	U
88	0305176F	Combat Survivor Evader Locator	05		993		993	29,253		29,253	U
89	0307581F	JSTARS Recap	05	70,879	44,343		44,343	128,019		128,019	U

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90	0401319F	Presidential Aircraft Replacement (PAR)	05	11,006	82,420		82,420	351,220		351,220	U
91	0701212F	Automated Test Systems	05		14,563		14,563	19,062		19,062	U
		System Development & Demonstration		3,516,726	3,907,650		3,907,650	4,075,804	425	4,076,229	
92	0604256F	Threat Simulator Development	06	24,318	23,844		23,844	21,630		21,630	U
93	0604759F	Major T&E Investment	06	45,985	73,302		73,302	66,385		66,385	U
94	0605101F	RAND Project Air Force	06	31,164	34,918		34,918	34,641		34,641	U
95	0605502F	Small Business Innovation Research	06	324,371							U
96	0605712F	Initial Operational Test & Evaluation	06	8,916	10,476		10,476	11,529		11,529	U
97	0605807F	Test and Evaluation Support	06	691,977	683,308		683,308	661,417		661,417	U
98	0605860F	Rocket Systems Launch Program (SPACE)	06	33,420	21,792		21,792	11,198		11,198	U
99	0605864F	Space Test Program (STP)	06	20,552	28,143		28,143	27,070		27,070	U
100	0605976F	Facilities Restoration and Modernization - Test and Evaluation Support	06	46,955	40,518		40,518	134,111		134,111	U
101	0605978F	Facilities Sustainment - Test and Evaluation Support	06	32,965	27,895		27,895	28,091		28,091	U
102	0606017F	Requirements Analysis and Maturation	06	18,673	22,507		22,507	29,100		29,100	U
103	0606116F	Space Test and Training Range Development	06	22,724	18,940		18,940	18,528		18,528	U
104	0606392F	Space and Missile Center (SMC) Civilian Workforce	06	166,727	176,196		176,196	176,666		176,666	U
105	0308602F	ENTEPRISE INFORMATION SERVICES (EIS)	06	4,912	3,841		3,841	4,410		4,410	U

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106	0702806F	Acquisition and Management Support	06	16,115	15,357		15,357	14,613		14,613	U
107	0804731F	General Skill Training	06	1,425	1,315		1,315	1,404		1,404	U
108	0909999F	Financing for Cancelled Account Adjustments	06	150							U
109	1001004F	International Activities	06	3,790	2,315		2,315	4,784		4,784	U
		Management Support		1,495,139	1,184,667		1,184,667	1,245,577		1,245,577	
110	0603423F	Global Positioning System III - Operational Control Segment	07	334,631	349,181		349,181	393,268		393,268	U
111	0604233F	Specialized Undergraduate Flight Training	07		8,565		8,565	15,427		15,427	U
112	0604445F	Wide Area Surveillance	07	2,000	22,577		22,577	46,695		46,695	U
114	0604618F	Joint Direct Attack Munition	07	2,389							U
115	0605018F	AF Integrated Personnel and Pay System (AF-IPPS)	07	45,250	31,344		31,344	10,368		10,368	U
116	0605024F	Anti-Tamper Technology Executive Agency	07	33,775	26,718		26,718	31,952		31,952	U
117	0605117F	Foreign Materiel Acquisition and Exploitation	07		41,689		41,689	42,960		42,960	U
118	0605278F	HC/MC-130 Recap RDT&E	07		10,807		10,807	13,987		13,987	U
119	0101113F	B-52 Squadrons	07	41,072	74,520		74,520	78,267		78,267	U
120	0101122F	Air-Launched Cruise Missile (ALCM)	07	450	451		451	453		453	U
121	0101126F	B-1B Squadrons	07	4,208	2,245		2,245	5,830		5,830	U
122	0101127F	B-2 Squadrons	07	112,691	108,183		108,183	152,458		152,458	U
123	0101213F	Minuteman Squadrons	07	116,344	166,729		166,729	182,958		182,958	U

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124	0101313F	Strat War Planning System - USSTRATCOM	07	31,046	28,358		28,358	39,148		39,148	U
125	0101314F	Night Fist - USSTRATCOM	07		87		87				U
126	0101316F	Worldwide Joint Strategic Communications	07		5,315		5,315	6,042		6,042	U
128	0102110F	UH-1N Replacement Program	07					14,116		14,116	U
129	0102326F	Region/Sector Operation Control Center Modernization Program	07	1,229				10,868		10,868	U
130	0105921F	Service Support to STRATCOM - Space Activities	07	3,079	8,090		8,090	8,674		8,674	U
131	0205219F	MQ-9 UAV	07	141,528	122,731		122,731	151,373		151,373	U
132	0205671F	Joint Counter RCIED Electronic Warfare	07			300	300				U
133	0207131F	A-10 Squadrons	07		16,200		16,200	14,853		14,853	U
134	0207133F	F-16 Squadrons	07	130,376	166,297		166,297	132,795		132,795	U
135	0207134F	F-15E Squadrons	07	233,898	205,979		205,979	356,717		356,717	U
136	0207136F	Manned Destructive Suppression	07	14,413	14,860		14,860	14,773		14,773	U
137	0207138F	F-22A Squadrons	07	146,291	231,599		231,599	387,564		387,564	U
138	0207142F	F-35 Squadrons	07	39,275	53,921		53,921	153,045		153,045	U
139	0207161F	Tactical AIM Missiles	07	28,820	43,360		43,360	52,898		52,898	U
140	0207163F	Advanced Medium Range Air-to-Air Missile (AMRAAM)	07	79,767	46,160		46,160	62,470		62,470	U
141	0207171F	F-15 EPAWSS	07	37,726							U
142	0207224F	Combat Rescue and Recovery	07	5,095	412		412				U

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143	0207227F	Combat Rescue - Pararescue	07	856	657		657	362		362	U
144	0207247F	AF TENCAP	07	6,974	31,428		31,428	28,413		28,413	U
145	0207249F	Precision Attack Systems Procurement	07	835	1,105		1,105	649		649	U
146	0207253F	Compass Call	07	16,480	14,187		14,187	13,723		13,723	U
147	0207268F	Aircraft Engine Component Improvement Program	07	93,160	103,942		103,942	109,859		109,859	U
148	0207325F	Joint Air-to-Surface Standoff Missile (JASSM)	07	12,414	9,793		9,793	30,002		30,002	U
149	0207410F	Air & Space Operations Center (AOC)	07	25,661	21,102		21,102	37,621		37,621	U
150	0207412F	Control and Reporting Center (CRC)	07		557		557	13,292		13,292	U
151	0207417F	Airborne Warning and Control System (AWACS)	07	172,785	131,812		131,812	86,644		86,644	U
152	0207418F	Tactical Airborne Control Systems	07	3,650	6,001		6,001	2,442		2,442	U
154	0207431F	Combat Air Intelligence System Activities	07	7,291	6,793		6,793	10,911		10,911	U
155	0207444F	Tactical Air Control Party-Mod	07	4,616	12,411		12,411	11,843		11,843	U
156	0207448F	C2ISR Tactical Data Link	07	1,699	1,674		1,674	1,515		1,515	U
157	0207452F	DCAPES	07	806	16,723		16,723	14,979		14,979	U
158	0207590F	Seek Eagle	07	23,472	21,564		21,564	25,308		25,308	U
159	0207601F	USAF Modeling and Simulation	07	11,687	24,945		24,945	16,666		16,666	U
160	0207605F	Wargaming and Simulation Centers	07	5,749	6,035		6,035	4,245		4,245	U
161	0207697F	Distributed Training and Exercises	07	3,251	4,358		4,358	3,886		3,886	U
162	0208006F	Mission Planning Systems	07	58,782	55,835		55,835	71,785		71,785	U

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163	0208059F	Service Support to Other Core Missions - STRATCOM (CYBERCOM Activities)	07	64,751							U
164	0208087F	AF Offensive Cyberspace Operations	07	12,928	12,874		12,874	25,025		25,025	U
165	0208088F	AF Defensive Cyberspace Operations	07	5,436	7,681		7,681	29,439		29,439	U
168	0301017F	Global Sensor Integrated on Network (GSIN)	07		5,974		5,974	3,470		3,470	U
169	0301112F	Nuclear Planning and Execution System (NPES)	07					4,060		4,060	U
175	0301400F	Space Superiority Intelligence	07	10,697	12,315		12,315	13,880		13,880	U
176	0302015F	E-4B National Airborne Operations Center (NAOC)	07	24,963	76,760		76,760	30,948		30,948	U
177	0303001F	Family of Advanced BLoS Terminals (FAB-T)	07		3,895		3,895	42,378		42,378	U
178	0303131F	Minimum Essential Emergency Communications Network (MEECN)	07	87,240	74,712		74,712	47,471		47,471	U
179	0303140F	Information Systems Security Program	07	64,972	46,303		46,303	46,388		46,388	U
180	0303141F	Global Combat Support System	07	692				52		52	U
181	0303142F	Global Force Management - Data Initiative	07		2,470		2,470	2,099		2,099	U
182	0303601F	MILSATCOM Terminals	07	57,930							U
184	0304260F	Airborne SIGINT Enterprise	07	72,910	112,775		112,775	90,762		90,762	U
187	0305099F	Global Air Traffic Management (GATM)	07	4,157	4,217		4,217	4,354		4,354	U
188	0305110F	Satellite Control Network (SPACE)	07	18,806	7,861		7,861	15,624		15,624	U
189	0305111F	Weather Service	07	19,404	29,826		29,826	19,974		19,974	U

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190	0305114F	Air Traffic Control, Approach, and Landing System (ATCALs)	07	25,309	19,392		19,392	9,770		9,770	U
191	0305116F	Aerial Targets	07	8,537	2,515		2,515	3,051		3,051	U
194	0305128F	Security and Investigative Activities	07		472		472	405		405	U
195	0305145F	Arms Control Implementation	07	13,222	9,137		9,137	4,844		4,844	U
196	0305146F	Defense Joint Counterintelligence Activities	07	40	361		361	339		339	U
199	0305173F	Space and Missile Test and Evaluation Center	07	3,490	3,152		3,152	3,989		3,989	U
200	0305174F	Space Innovation, Integration and Rapid Technology Development	07	1,999	1,543		1,543	3,070	4,715	7,785	U
201	0305179F	Integrated Broadcast Service (IBS)	07	8,592	7,860		7,860	8,833		8,833	U
202	0305182F	Spacelift Range System (SPACE)	07	10,134	6,881		6,881	11,867		11,867	U
203	0305202F	Dragon U-2	07	5,511	34,471		34,471	37,217		37,217	U
204	0305205F	Endurance Unmanned Aerial Vehicles	07	20,000	5,000		5,000				U
205	0305206F	Airborne Reconnaissance Systems	07	37,649	60,142		60,142	3,841		3,841	U
206	0305207F	Manned Reconnaissance Systems	07	14,116	13,245		13,245	20,975		20,975	U
207	0305208F	Distributed Common Ground/Surface Systems	07	26,993	22,686		22,686	18,902		18,902	U
208	0305220F	RQ-4 UAV	07	241,828	188,053		188,053	256,307		256,307	U
209	0305221F	Network-Centric Collaborative Targeting	07	11,096	19,587		19,587	22,610		22,610	U
210	0305236F	Common Data Link Executive Agent (CDL EA)	07	32,015	43,796		43,796				U

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211	0305238F	NATO AGS	07	232,851	138,400		138,400	38,904		38,904	U
212	0305240F	Support to DCGS Enterprise	07	17,115	28,336		28,336	23,084		23,084	U
213	0305258F	Advanced Evaluation Program	07					116,143		116,143	U
214	0305265F	GPS III Space Segment	07	204,864	180,359		180,359	141,888		141,888	U
215	0305600F	International Intelligence Technology and Architectures	07	2,270	2,298		2,298	2,360		2,360	U
216	0305614F	JSPOC Mission System	07	83,277	80,669		80,669	72,889		72,889	U
217	0305881F	Rapid Cyber Acquisition	07	3,959	3,149		3,149	4,280		4,280	U
218	0305906F	NCMC - TW/AA System	07					4,951		4,951	U
219	0305913F	NUDET Detection System (SPACE)	07	20,405	14,403		14,403	21,093		21,093	U
220	0305940F	Space Situation Awareness Operations	07	11,017	20,016		20,016	35,002		35,002	U
221	0306250F	Cyber Operations Technology Development	07	7,768	11,980		11,980				U
222	0308699F	Shared Early Warning (SEW)	07	1,119	849		849	6,366		6,366	U
223	0401115F	C-130 Airlift Squadron	07		33,962		33,962	15,599		15,599	U
224	0401119F	C-5 Airlift Squadrons (IF)	07	31,772	22,864		22,864	66,146		66,146	U
225	0401130F	C-17 Aircraft (IF)	07	72,566	48,807		48,807	12,430		12,430	U
226	0401132F	C-130J Program	07	26,715	25,010		25,010	16,776		16,776	U
227	0401134F	Large Aircraft IR Countermeasures (LAIRCM)	07	4,672	6,802		6,802	5,166		5,166	U
228	0401219F	KC-10s	07	2,714	1,799		1,799				U
229	0401314F	Operational Support Airlift	07	27,783	46,453		46,453	13,817		13,817	U
230	0401318F	CV-22	07	37,698	27,776		27,776	16,702		16,702	U

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231	0408011F	Special Tactics / Combat Control	07	8,081	7,929		7,929	7,164		7,164	U
232	0702207F	Depot Maintenance (Non-IF)	07	1,407	1,525		1,525	1,518		1,518	U
233	0708610F	Logistics Information Technology (LOGIT)	07	56,325	67,915		67,915	61,676		61,676	U
234	0708611F	Support Systems Development	07	15,209	12,107		12,107	9,128		9,128	U
235	0804743F	Other Flight Training	07	987	1,836		1,836	1,653		1,653	U
236	0808716F	Other Personnel Activities	07	126	121		121	57		57	U
237	0901202F	Joint Personnel Recovery Agency	07	2,523	5,911		5,911	3,663		3,663	U
238	0901218F	Civilian Compensation Program	07	2,418	3,604		3,604	3,735		3,735	U
239	0901220F	Personnel Administration	07	6,381	4,598		4,598	5,157		5,157	U
240	0901226F	Air Force Studies and Analysis Agency	07	1,346	1,103		1,103	1,523		1,523	U
241	0901279F	Facilities Operation - Administrative	07	3,666							U
242	0901538F	Financial Management Information Systems Development	07	91,766	95,130		95,130	10,581		10,581	U
9999	9999999999	Classified Programs		11,090,409	12,071,051	16,800	12,087,851	13,091,557	27,765	13,119,322	U
		Operational Systems Development		15,010,147	16,060,018	17,100	16,077,118	17,457,056	32,480	17,489,536	
Total Research, Development, Test & Eval, AF				23,619,928	25,194,457	17,100	25,211,557	28,112,251	32,905	28,145,156	

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In the Fiscal Year (FY) 2017 President's Budget

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are split into two books:

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

0101815F ADVANCED STRATEGIC PROGRAM
0207424F EVALUATION AND ANALYSIS PROGRAM
0208161F SPECIAL EVALUATION SYSTEM
0208162F ADVANCED TECHNOLOGY PROGRAM
0301310F NATIONAL AIR INTELLIGENCE CENTER
0301314F COBRA BALL
0301315F MISSILE AND SPACE TECHICAL COLLECTION
0301324F FOREST GREEN
0301386F GDIP COLLECTION MANAGEMENT
0304111F SPECIAL ACTIVITES
0304311F SELECTED ACTIVITIES
0304348F ADVANCED GEOSPATIAL INTELLIGENCE (AGI)
0305124F SPECIAL APPLICATIONS PROGRAM
0305127F FOREIGN COUNTERINTELLIGENCE ACTIVITES
0305159F DEFENSE RECONNAISSANCE SUPPORT ACTIVITIES
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0604446F WIDE AREA SURVEILLANCE - SP
0605798F ANALYSIS SUPPORT GROUP

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development	R-1 Program Element (Number/Name) PE 0301017F I Global Sensor Integrated on Network (GSIN)
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	-	0.000	5.974	3.470	0.000	3.470	3.539	3.605	3.672	3.737	Continuing	Continuing
675368: GSIN (Global Integrated Sensor Network)	-	0.000	5.974	3.470	0.000	3.470	3.539	3.605	3.672	3.737	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

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 2011 Unified Command Plan (UCP) change 1, the CJCS GSIN Planning Order (PLANORD) dated 06/1400Z Mar 10, the USSTRATCOM GSIN PLANORD dated 29/1943Z Jan 10 and a memorandum from the Senior Warfighter Forum (SWarF) to the VCJCS dated 13 October 2011 documenting data and information sharing deficiencies and recommendations to address them. This guidance continues to receive senior level attention as recently reiterated in the AFSPC/CC memo "Commander's Intent on On-going Material Decisions" dated 29 July 2015.

GSIN directly supports the above mission. It nets together selected systems and 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. Using these traditionally stove-piped systems and sensors, GSIN enables the warfighter in several ways. First it will enable creation of a User Defined Operating Picture (UDOP) to provide a single, unambiguous missile event picture allowing real-time collaboration for nuclear C2 and improved senior leader situational awareness (SA) for effective decision-making. Secondly, it will improve Space Situational Awareness (SSA) by tapping additional sensor capability. Finally, GSIN will dramatically improve the ingestion of non-traditional, but readily available non-US government and commercial data to the space catalog.

The Nation's strategic C2, sensors, and mission planning programs cannot rapidly exchange information across multiple missions creating ambiguity that delays time critical national C2 decision making processes. GSIN will develop and establish a unified schema that will integrate disparate Missile Warning/Missile Defense (MW/MD) data into a single exposed data set providing redundant and unambiguous MW/MD data to national leadership. GSIN also enables existing sensors to provide data in net-centric formats consumable by other authorized systems and mission areas, thus reducing the need to acquire more sensors. Activities also include studies and analysis to support both current program planning, execution, and future program planning.

This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0301017F / <i>Global Sensor Integrated on Network (GSIN)</i>
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B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	0.000	5.974	3.505	0.000	3.505
Current President's Budget	0.000	5.974	3.470	0.000	3.470
Total Adjustments	0.000	0.000	-0.035	0.000	-0.035
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	-0.035	0.000	-0.035

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
Title: GSIN Sensor Data Exposure: NDPP, TPY-2, MASINT	0.000	4.407	1.635
Description: Non traditional Data Pre Processor (NDPP): Designs, develops, exposes and integrates Space Situational Awareness (SSA) data from Commercial, Owner-Operator, and Allied non-traditional sensors into space production systems and Space Catalog via the Global Information Grid. Develops implementation plans to mature data exposure capabilities. Army Navy Transportable Radar (AN/TPY-2): Designs, develops, tests, exposes, and integrates SSA data from the missile defense AN/TPY-2 sensor into space production systems and the Global Information Grid. Develops implementation plans to mature data exposure capabilities. Measurement and Signals (MASINT)/Technical Intelligence (TI): Designs, develops, exposes, and integrates data from MASINT and Technical Intelligence sensors in regions of the world where we currently do not have coverage. Provides near real time data from sensors that previously reported hours or days after events.			
FY 2015 Accomplishments: - Accomplished under PE 0101313F Strategic War Planning System			
FY 2016 Plans: - Test and field NDPP to enable outbound SSA data sharing and make data available to authorized users for consumption. Integrate with Joint Space Operations Center (JSpOC)Mission System (JMS) - Begin development and testing of SSA Data Sharing Strategy to enhance NDPP - Finalize development of TPY-2 and begin testing of the exposure of SSA data from the missile defense AN/TPY-2 sensor - Continue development of C2BMC SSA capability, to include development of Net Centric Command and Control capability to enable exposure of PACOM, CENTCOM, and EUCOM data via C2BMC, providing them with same capability as NORTHCOM/PACOM			

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force		Date: February 2016		
Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>		R-1 Program Element (Number/Name) PE 0301017F / <i>Global Sensor Integrated on Network (GSIN)</i>		
C. Accomplishments/Planned Programs (\$ in Millions)		FY 2015	FY 2016	FY 2017
<ul style="list-style-type: none"> - Begin exposure of MASINT Phase 2 <p>FY 2017 Plans:</p> <ul style="list-style-type: none"> - Complete testing and fielding of SSA Data Sharing Strategy enabling automatic ingestion and exposure of SSA data to authorized users - Finalize C2BMC SSA development to accommodate AN/TPY-2 radar and enter operational testing - Test and field Net Centric Command and Control capability as a part of overall C2BMC SSA effort - Complete exposure of MASINT Phase 2. 				
<p>Title: GSIN Data Integration: Launch Characterization Data Services Net Centric Data Integration Schema Configuration Control Technical Outreach</p> <p>Description: Develop common XML net-enabled data schemas and configuration management processes and procedures for Missile Warning, Missile Defense, Space, MASINT/Technical Intelligence, and Sensor data to manage the XML schema and associated XML messaging and services. Develop technical outreach for potential new GSIN data consumers and providers who require GSIN sensor data. Upgrade GSIN capabilities as DISA Enterprise Services evolve. Continue modifications to data services. Support integration of GSIN sensor data into appropriate registries/catalogs. Continue development of GSIN data services to enable visualization in a common operating picture. Conduct studies and demonstrations of SSA capabilities, data correlation, launch event characterization and assessment services for risk reduction evaluations.</p> <p>FY 2015 Accomplishments:</p> <ul style="list-style-type: none"> - Accomplished under PE 0101313F Strategic War Planning System <p>FY 2016 Plans:</p> <ul style="list-style-type: none"> - Continue to develop common XML net-enabled data schemas to integrate additional sensor data, and continue to develop configuration control processes, technical outreach processes for new GSIN data consumers and providers - Upgrade GSIN capabilities as DISA Enterprise Services evolve - Continue modifications to data services - Begin design and development of MASINT Phase 2 - Test and delivery schema to correspond to NDPP delivery (Spiral 3), and begin initial schema updates/development for TPY-2 SSA capability (Spiral 4) <p>FY 2017 Plans:</p> <ul style="list-style-type: none"> - Complete and deliver Common XML net-enabled schemas. - Continue developing and releasing periodic configuration control processes - Continue technical outreach processes for new GSIN data consumers and providers - Deliver new GSIN capabilities to match evolving DISA Enterprise Service updates 		0.000	1.567	1.835

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0301017F / <i>Global Sensor Integrated on Network (GSIN)</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
- Continue development of new and improved data services			
- Complete development of MASINT Phase 2 (including operational testing and fielding activities)			
- Complete and test schema changes for TPY-2 SSA and data service updates (TPY-2 Spiral 4)			
Accomplishments/Planned Programs Subtotals	0.000	5.974	3.470

D. Other Program Funding Summary (\$ in Millions)
N/A

Remarks

E. Acquisition Strategy
GSIN uses existing government contract vehicles (from agencies such as Missile Defense Agency (MDA) or Air Force Life Cycle Management Center (AFLCMC)) to develop and modernize the combined Space Situational Awareness/Missile Warning/Missile Defense data exposure architecture and solution. The contracts are managed by the relevant organizations contracting office. GSIN does not award or manage any contracts.

The Air Force Life Cycle Management Center at Hanscom AFB, (AFLCMC/HB) provides necessary program management, financial management, and other support as may be applicable for GSIN.

F. Performance Metrics
Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0301017F / <i>Global Sensor Integrated on Network (GSIN)</i>	Project (Number/Name) 675368 / <i>GSIN (Global Integrated Sensor Network)</i>
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
GSIN MW, MD Space, Common Schema, Configuration and Control	C/CPFF	BAH : Omaha, NE	-	0.000		0.680	Oct 2015	0.680	Oct 2016	0.000		0.680	Continuing	Continuing	-
GSIN Non-traditional Space Situational Awareness Data Exposure	C/CPAF	Lockheed Martin : Colorado Springs, CO	-	0.000		1.800	Nov 2015	0.000		0.000		0.000	Continuing	Continuing	-
GSIN Non-traditional Space Situational Awareness Data Exposure (R)	C/CPAF	Raytheon : Woburn, MA	-	0.000		0.200	Nov 2015	0.000		0.000		0.000	Continuing	Continuing	-
GSIN Space Situational Awareness Data Exposure - C2BMCEExpose Space Situational Awareness Data - AN/TPY-2 Sensor (2)	C/CPAF	Lockheed Martin : Huntsville, AL	-	0.000		1.893	Oct 2015	1.180	Oct 2016	0.000		1.180	Continuing	Continuing	-
GSIN Space Situational Awareness Data Exposure - MASINT/TI	C/CPAF	MIT/LL : Boston, MA	-	0.000		0.514	Jan 2016	0.435	Jan 2017	0.000		0.435	Continuing	Continuing	-
Subtotal			-	0.000		5.087		2.295		0.000		2.295	-	-	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
GSIN Developmental Testing	C/CPFF	Various : Omaha, NE	-	0.000		0.212	May 2016	0.500	May 2017	0.000		0.500	Continuing	Continuing	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0301017F / <i>Global Sensor Integrated on Network (GSIN)</i>	Project (Number/Name) 675368 / <i>GSIN (Global Integrated Sensor Network)</i>
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Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	0.000		0.212		0.500		0.000		0.500	-	-	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
GSIN Program Management Administration	C/FFP	Various : Omaha, NE	-	0.000		0.675	Oct 2015	0.675	Oct 2016	0.000		0.675	Continuing	Continuing	-
Subtotal			-	0.000		0.675		0.675		0.000		0.675	-	-	-

	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	0.000	5.974	3.470	0.000	3.470	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0301017F / <i>Global Sensor Integrated on Network (GSIN)</i>	Project (Number/Name) 675368 / <i>GSIN (Global Integrated Sensor Network)</i>

	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
GSIN Data Exposure (Sharing Strategy-NDPP) Development					█	█	█	█																				
GSIN Data Exposure (Sharing Strategy-NDPP) Operational Testing									█	█	█	█																
GSIN Data Exposure (Sharing Strategy-NDPP) Capability Fielded (Jan 16)													█															
GSIN Data Exposure (TPY-2) Design and Development					█	█	█	█																				
GSIN Data Exposure (TPY-2) Operational Testing													█	█	█	█												
GSIN Data Exposure (TPY-2) Capability Fielded (Dec 18)																	█											
GSIN Data Exposure (NC2) Design and Development					█	█	█	█																				
GSIN Data Exposure (NC2) Operational Testing													█															
GSIN Data Exposure (NC2) Capability Fielded																	█											
GSIN Data Exposure (MASINT Phase 2) Design and Development					█	█	█	█																				
GSIN Data Exposure (MASINT Phase 2) Operational Testing													█	█	█	█												
GSIN Data Exposure (MASINT Phase 2) Capability Fielded (Sep 17)																	█											
GSIN Data Exposure (MASINT Phase 3) Design and Development													█	█	█	█												
GSIN Data Exposure (MASINT Phase 3) Operational Testing																					█	█	█	█				

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0301017F / <i>Global Sensor Integrated on Network (GSIN)</i>	Project (Number/Name) 675368 / <i>GSIN (Global Integrated Sensor Network)</i>
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	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021							
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
GSIN Data Exposure (MASINT Phase 3) Capability Fielded (Jun 20)																																
GSIN Data integration (Schema) Spiral 3 Operational Testing					■	■	■	■																								
GSIN Data Integration (Schema) Spiral 3 Delivery (tied to NDPP)						■																										
GSIN Data Integration (Schema) Spiral 4 Design and Development						■	■	■																								
GSIN Data integration (Schema) Spiral 4 Operational Testing											■	■																				
GSIN Data Integration (Schema) Spiral 4 Delivery (tied to TPY-2)												■																				
GSIN Data Integration (Schema) Spiral 5 Design and Development												■	■	■	■	■																
GSIN Data integration (Schema) Spiral 5 Operational Testing																■	■	■	■	■												
GSIN Data Integration (Schema) Spiral 5 Delivery (Maintenance)																				■												
GSIN Data Integration (Schema) Spiral 6 Design and Development																				■	■	■	■	■								
GSIN Data integration (Schema) Spiral 6 Operational Testing																								■	■	■	■	■				
GSIN Data Integration (Schema) Spiral 6 Delivery (tied to MASINT/TI)																												■				

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0301017F / <i>Global Sensor Integrated on Network (GSIN)</i>	Project (Number/Name) 675368 / <i>GSIN (Global Integrated Sensor Network)</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
GSIN Data Exposure (Sharing Strategy-NDPP) Development	1	2016	4	2016
GSIN Data Exposure (Sharing Strategy-NDPP) Operational Testing	4	2016	2	2017
GSIN Data Exposure (Sharing Strategy-NDPP) Capability Fielded (Jan 16)	2	2017	2	2017
GSIN Data Exposure (TPY-2) Design and Development	1	2016	1	2017
GSIN Data Exposure (TPY-2) Operational Testing	2	2017	1	2018
GSIN Data Exposure (TPY-2) Capability Fielded (Dec 18)	1	2018	1	2018
GSIN Data Exposure (NC2) Design and Development	1	2016	1	2017
GSIN Data Exposure (NC2) Operational Testing	1	2017	1	2017
GSIN Data Exposure (NC2) Capability Fielded	2	2017	2	2017
GSIN Data Exposure (MASINT Phase 2) Design and Development	2	2016	3	2017
GSIN Data Exposure (MASINT Phase 2) Operational Testing	3	2017	4	2017
GSIN Data Exposure (MASINT Phase 2) Capability Fielded (Sep 17)	4	2017	4	2017
GSIN Data Exposure (MASINT Phase 3) Design and Development	4	2018	1	2020
GSIN Data Exposure (MASINT Phase 3) Operational Testing	2	2020	3	2020
GSIN Data Exposure (MASINT Phase 3) Capability Fielded (Jun 20)	3	2020	3	2020
GSIN Data integration (Schema) Spiral 3 Operational Testing	1	2016	2	2016
GSIN Data Integration (Schema) Spiral 3 Delivery (tied to NDPP)	2	2016	2	2016
GSIN Data Integration (Schema) Spiral 4 Design and Development	2	2016	3	2017
GSIN Data integration (Schema) Spiral 4 Operational Testing	4	2017	1	2018
GSIN Data Integration (Schema) Spiral 4 Delivery (tied to TPY-2)	1	2018	1	2018
GSIN Data Integration (Schema) Spiral 5 Design and Development	1	2018	1	2019
GSIN Data integration (Schema) Spiral 5 Operational Testing	2	2019	3	2019

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0301017F / <i>Global Sensor Integrated on Network (GSIN)</i>	Project (Number/Name) 675368 / <i>GSIN (Global Integrated Sensor Network)</i>
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Events	Start		End	
	Quarter	Year	Quarter	Year
GSIN Data Integration (Schema) Spiral 5 Delivery (Maintenance)	3	2019	3	2019
GSIN Data Integration (Schema) Spiral 6 Design and Development	3	2019	2	2020
GSIN Data integration (Schema) Spiral 6 Operational Testing	2	2020	3	2020
GSIN Data Integration (Schema) Spiral 6 Delivery (tied to MASINT/TI)	3	2020	3	2020

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0301112F / <i>Nuclear Planning and Execution System (NPES)</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	0.000	0.000	0.000	4.060	0.000	4.060	4.358	17.036	26.561	30.716	37.329	120.060
673768: <i>Nuclear Planning and Execution System (NPES)</i>	0.000	0.000	0.000	4.060	0.000	4.060	4.358	17.036	26.561	30.716	37.329	120.060
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

Program MDAP/MAIS Code: 523

Note
 This program, BA 07 PE 0301112F, project 673768, Nuclear Planning and Execution System (NPES) Modernization, is a new start.

A. Mission Description and Budget Item Justification
 United States Strategic Command (USSTRATCOM) conducts global operations in partnership with other combatant commands, services and U.S. government agencies to deter and detect strategic attacks against the United States. USSTRATCOM is responsible for command of U.S. nuclear capabilities, space operations, global surveillance and reconnaissance, intelligence, communications, computers, global missile defense and combatting weapons of mass destruction. To enable completion of these missions, it is modernizing the Nuclear Planning and Execution System (NPES). NPES is a Chairman, Joint Chiefs of Staff system for nuclear operations and fulfillment of nuclear command and control (NC2) responsibilities. NPES supports national strategic deterrence by providing a host of NC2 execution activities as well as contingency and crisis action planning capabilities to selected joint and combatant command staffs. NPES is operated by USSTRATCOM and other specified users performing missions to deter and dissuade threats, and, when directed, defeat adversaries.

The NPES system has evolved from several single-purpose command and control systems over the past 30 years and has reached a point where it requires modernization to meet national and strategic objectives and to comply with future concepts of operation. Additionally, modernization is needed to improve cybersecurity, system effectiveness, and supportability. Modernization will also seek to lower the total cost of ownership and sustainment. The modernization program will use proven/mature software engineering, technologies, and design tenets to provide a modern, secure, interoperable and reliable NC2 software capability.

This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development	R-1 Program Element (Number/Name) PE 0301112F I Nuclear Planning and Execution System (NPES)
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B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	0.000	0.000	0.000	0.000	0.000
Current President's Budget	0.000	0.000	4.060	0.000	4.060
Total Adjustments	0.000	0.000	4.060	0.000	4.060
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	4.060	0.000	4.060

Change Summary Explanation

FY 2017 RDT&E increased \$4.1 million for NPES Modernization

C. Accomplishments/Planned Programs (\$ in Millions)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Nuclear Planning and Execution System (NPES) Modernization	0.000	0.000	4.060	0.000	4.060
Description: The NPES program will use proven and mature software engineering, technologies, and design tenets to provide a modern, secure, interoperable and reliable NC2 capability for USSTRATCOM and other users as appropriate. It will update and/or replace existing system software and improve reliability and sustainability. It will also seek to reduce total ownership cost.					
FY 2015 Accomplishments: N/A					
FY 2016 Plans: N/A					
FY 2017 Base Plans: Risk Reduction Activities will outline the software architecture for development activities and identify the software build and evaluation approach for NPES modernization. - Refine System / Subsystem Design Description (SSDD) draft - Conduct software reuse analysis - Evaluate user interface and data integration prototypes					

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0301112F / <i>Nuclear Planning and Execution System (NPES)</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
- Generate program milestone decision products and artifacts - Complete Preliminary Design Review preparation FY 2017 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	0.000	0.000	4.060	0.000	4.060

D. Other Program Funding Summary (\$ in Millions)												
<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To Complete</u>	<u>Total Cost</u>	
• N/A: N/A	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	-

Remarks

E. Acquisition Strategy

NPES will develop, test, and field a renewed Nuclear Command and Control (NC2) capability for combatant commanders using an evolutionary acquisition approach with development contracts that are negotiated and awarded in a competitive environment. Additionally, select government agencies will be used to conduct relevant analyzes and provide other required support.

The Air Force Life Cycle Management Center at Hanscom AFB, (AFLCMC/HB) and the 55th CONS at Offutt AFB will be the contracting authorities for NPES and provide necessary program management, contracts, legal, and financial management support.

F. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0301112F / Nuclear Planning and Execution System (NPES)	Project (Number/Name) 673768 / Nuclear Planning and Execution System (NPES)
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Pre Milestone B Risk Reduction	Various	Various : Offutt AFB, NE	0.000	0.000		0.000		1.500	Jan 2017	0.000		1.500	0.000	1.500	3.500
NPES Software Dev (Spiral 1)	C/TBD	TBD : TBD	0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000	51.000
NPES Software Dev (Spiral 2)	C/TBD	TBD : TBD	0.000	0.000		0.000		0.000		0.000		0.000	24.000	24.000	48.000
Subtotal			0.000	0.000		0.000		1.500		0.000		1.500	24.000	25.500	102.500

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Technical Engineering Services	Various	Various : Offutt AFB, NE	0.000	0.000		0.000		1.560	Jan 2017	0.000		1.560	3.500	5.060	6.060
Subtotal			0.000	0.000		0.000		1.560		0.000		1.560	3.500	5.060	6.060

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Responsible Test Organization Support	C/CPIF	TBD : TBD	0.000	0.000		0.000		0.000		0.000		0.000	2.675	2.675	2.675
Certification and Accreditation	MIPR	JTIC : Ft Hichuaha, AZ	0.000	0.000		0.000		0.000		0.000		0.000	1.325	1.325	1.325
Subtotal			0.000	0.000		0.000		0.000		0.000		0.000	4.000	4.000	4.000

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0301112F / Nuclear Planning and Execution System (NPES)	Project (Number/Name) 673768 / Nuclear Planning and Execution System (NPES)
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Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Management Administration	Various	Various : Offutt AFB, NE	0.000	0.000		0.000		1.000	Jan 2017	0.000		1.000	6.329	7.329	7.500
Subtotal			0.000	0.000		0.000		1.000		0.000		1.000	6.329	7.329	7.500
Project Cost Totals			0.000	0.000		0.000		4.060		0.000		4.060	37.829	41.889	120.060

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0301112F / <i>Nuclear Planning and Execution System (NPES)</i>	Project (Number/Name) 673768 / <i>Nuclear Planning and Execution System (NPES)</i>

	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Pre Milestone B Risk Reduction Analyzes																												
Development RFP Release Decision Point																												
Milestone B Decision																												
Spiral 1 Development and Test																												
Spiral 2 Development and Test																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0301112F / <i>Nuclear Planning and Execution System (NPES)</i>	Project (Number/Name) 673768 / <i>Nuclear Planning and Execution System (NPES)</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Pre Milestone B Risk Reduction Analyzes	1	2017	1	2018
Development RFP Release Decision Point	1	2018	1	2018
Milestone B Decision	1	2019	1	2019
Spiral 1 Development and Test	1	2019	3	2020
Spiral 2 Development and Test	3	2020	4	2021

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0301400F / <i>Space Superiority Intelligence</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	-	10.697	12.315	13.880	0.000	13.880	14.100	14.344	14.583	14.841	Continuing	Continuing
67A051: <i>Space Superiority - Advanced Intelligence Systems</i>	-	10.697	12.315	13.880	0.000	13.880	14.100	14.344	14.583	14.841	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Provides Electronic Support (ES) for key find, fix, track, target, engage and assess (F2T2EA) requirements supporting Space Superiority activities. Funds developmental intelligence collection to support new capability acquisition and development. This project also funds transportable intelligence collection and analysis capabilities that are modular (plug-and-play), and can keep pace with technological advances and emerging threats. It provides intelligence support systems for 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 system development and vulnerability/susceptibility assessments to support tactics, techniques and procedures (TTP) development and future threat technology studies necessary for mission area success and achievement of space superiority, and to preserve the US space advantage across all domains. This program is in Budget Activity 7, Operational System Development, because it includes development efforts to upgrade systems that have been fielded.

B. Program Change Summary (\$ in Millions)

	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>
Previous President's Budget	10.697	13.815	14.019	0.000	14.019
Current President's Budget	10.697	12.315	13.880	0.000	13.880
Total Adjustments	0.000	-1.500	-0.139	0.000	-0.139
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	-1.500			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	-0.139	0.000	-0.139

Change Summary Explanation

\$1.5M congressionally directed reduction to FY16 for insufficient justification.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0301400F / <i>Space Superiority Intelligence</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
<p>Title: Advanced Intelligence Systems for Space Superiority</p> <p>Description: Develops transportable and fixed collection and analysis capability.</p> <p>FY 2015 Accomplishments: Fielded six mobile electronic support systems designed to satisfy baseline intelligence and electronic support requirements; Produced 200+ analytical products to aid R&D developmental efforts. Enhanced mobile and fixed collection and analysis capabilities by testing and delivering a near real-time data transfer capability; eliminated lag times allowing production centers to conduct reporting and analysis on High Value Targets in real-time in support of COCOM requirements. Supported three exercises and two developmental test events allowing enhancements to the intelligence architectural designs and improvements to Electronic Support TTPs.</p> <p>FY 2016 Plans: Will support Space Superiority RDT&E activities by developing, integrating, and fielding enhanced Space Control, Space Situational Awareness, and Space Protection Program capabilities. Will integrate new technologies into transportable and fixed collection capabilities to improve data analysis, product development, deployment and testing activity support.</p> <p>FY 2017 Plans: Will continue to support Space Superiority RDT&E activities to include developing new platforms and modernizing fixed site infrastructure to support mission expansion. Will develop new methods to rapidly deliver actionable intelligence to support mission expansion and new capability development within the space control arena. Will expand fixed collection and analysis capabilities to correct identified space superiority intelligence shortfalls.</p>	10.697	12.315	13.880
Accomplishments/Planned Programs Subtotals	10.697	12.315	13.880

D. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u> <u>Base</u>	<u>FY 2017</u> <u>OCO</u>	<u>FY 2017</u> <u>Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• None: None	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Remarks

E. Acquisition Strategy
 All contracts funded in this program will be awarded using competitive procedures to the maximum extent possible.

Space Superiority and R&D Intelligence Development: Single Delivery, CPFF, advisory and assistance contractor supporting development efforts. Prime contractor is Macaulay-Brown.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0301400F / <i>Space Superiority Intelligence</i>
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Architecture upgrades to SSA, SPP, and Space Superiority: Multiple Delivery, CPFF integration contract. Prime contractor is BITSYSTEMS Data Analysis

Production development for R&D: Multiple Delivery, CPFF production contract supporting vulnerabilities analysis. Prime Contractor is Booz-Allen Hamilton Intelligence systems

Testing and data collection: Multiple Delivery, CPFF production contract providing independent validation and verification of new capability development. Prime contractor is Booz-Allen Hamilton.

All activities are contracted by ACC, AMIC, Det 2/ZQ-PK and are managed by 25AF/ZQ.

F. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force												Date: February 2016				
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)								
3600 / 7				PE 0301400F / Space Superiority Intelligence				67A051 / Space Superiority - Advanced Intelligence Systems								
Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost To Complete	Total Cost	Target Value of Contract
Space Superiority and R&D intelligence Development	Various	Various : TBD	-	2.457	Nov 2014	2.705	Nov 2015	3.250	Nov 2016	0.000		3.250		Continuing	Continuing	TBD
Architecture upgrades to SSA, SPP, and Space Superiority	Various	Various : TBD	-	3.602	Oct 2014	4.302	Nov 2015	5.061	Nov 2016	0.000		5.061		Continuing	Continuing	TBD
Data analysis and product development for R&D	Various	Various : TBD	-	3.676	Oct 2014	4.050	Nov 2015	4.150	Nov 2016	0.000		4.150		Continuing	Continuing	TBD
Intelligence systems testing and data collection	Various	Various : TBD	-	0.460	Nov 2014	0.460	Nov 2015	0.600	Nov 2016	0.000		0.600		Continuing	Continuing	TBD
Subtotal			-	10.195		11.517		13.061		0.000		13.061		-	-	-
Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			-	-		-		-		-		-		-	-	-
Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			-	-		-		-		-		-		-	-	-
Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost To Complete	Total Cost	Target Value of Contract
Program Management Administration (PMA)	Various	Various : TBD	-	0.502	Oct 2015	0.798		0.819	Oct 2015	0.000		0.819		Continuing	Continuing	TBD
Subtotal			-	0.502		0.798		0.819		0.000		0.819		-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force							Date: February 2016				
Appropriation/Budget Activity 3600 / 7			R-1 Program Element (Number/Name) PE 0301400F / <i>Space Superiority Intelligence</i>				Project (Number/Name) 67A051 / <i>Space Superiority - Advanced Intelligence Systems</i>				
	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract		
Project Cost Totals	-	10.697	12.315	13.880	0.000	13.880	-	-	-		

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0301400F / <i>Space Superiority Intelligence</i>	Project (Number/Name) 67A051 / <i>Space Superiority - Advanced Intelligence Systems</i>

	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

Architecture upgrade for SSA, SPP, and Space Superiority	[Redacted]																											
Data analysis and product development for R&D intelligence	[Redacted]																											
Deployment for testing and data collection	[Redacted]																											

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0301400F / <i>Space Superiority Intelligence</i>	Project (Number/Name) 67A051 / <i>Space Superiority - Advanced Intelligence Systems</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Architecture upgrade for SSA, SPP, and Space Superiority	1	2015	4	2021
Data analysis and product development for R&D intelligence	1	2015	4	2021
Deployment for testing and data collection	1	2015	4	2021

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0302015F / <i>E-4B National Airborne Operations Center (NAOC)</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	-	24.963	76.760	30.948	0.000	30.948	20.563	15.843	34.687	133.762	Continuing	Continuing
674777: <i>E-4B Aircraft Modernization</i>	-	24.963	76.760	30.948	0.000	30.948	20.563	15.843	34.687	133.762	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The four (4) aircraft E-4B National Airborne Operations Center (NAOC) fleet satisfies the military need for an airborne operations center with communications capabilities permitting military and civilian leadership to monitor and control military and civil national assets during all phases of conflict (nuclear and non-nuclear) or natural disaster. The E-4B NAOC fleet also satisfies the military requirement to provide a highly survivable node of the National Military Command System (NMCS).

This Program Element's (PE's) 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). Additionally modifications may enhance the aircraft's operations center facilities, to include but not limited to necessary for the Senior Leadership Command, Control and Communications System (SL3CS), National Leadership Command Capability (NLCC), Nuclear Command and Control Communications (NC3) and other communications necessary for the E-4B fleet to execute its mission. Funds may also be used to explore and develop modifications, upgrades, future systems and recapitalization efforts required to meet evolving mission requirements. Developmental modifications and studies/projects currently underway or planned for accomplishment under this program include:

- The Advanced Extremely High Frequency (AEHF) Compatible Terminal/ Presidential National Voice Conferencing (PNVC) Program integrates AEHF Compatible Command Post Terminals and PNVC capability onto the E-4B NAOC platform. This integration is necessary to replace the legacy Military Strategic, Tactical and Relay (MILSTAR) terminal, and provide access to protected wideband AEHF satellite networks. PNVC replaces the Survivable Emergency Conferencing Network (SECN), which will not be supported once the AEHF satellite network is in place.

- The Low Frequency Transmit System (LFTS) program replaces the currently installed Very Low Frequency/Low Frequency (VLF/LF) Transmit system, which is no longer sustainable after over 35 years of operation. In order to meet existing Presidential Policy Directive (PPD)-35 requirements and ensure there is assured connectivity between civilian and military leadership and military forces during real world situations, this system must be replaced. The transmit system consists of three primary equipment groups: a Control/Monitor group, a Power Amplifier/Coupler (PA/C) group, and a Trailing Wire Antenna (TWA) group.

- E-4B recapitalization includes those activities related the replacement of the current NAOC fleet. Efforts will involve early acquisition activities, to include but not limited to, preparation for a Materiel Development Decision (MDD), an Analysis of Alternatives (AoA), development of initial requirements/acquisition strategy, risk reduction activities, and other efforts necessary to initiate a recapitalization program.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0302015F / <i>E-4B National Airborne Operations Center (NAOC)</i>
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The FY2017 funding request was reduced by \$4.0 million to account for the availability of prior year execution balances.

This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	25.852	80.360	26.535	0.000	26.535
Current President's Budget	24.963	76.760	30.948	0.000	30.948
Total Adjustments	-0.889	-3.600	4.413	0.000	4.413
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	-3.600			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-0.889	0.000			
• Other Adjustments	0.000	0.000	4.413	0.000	4.413

Change Summary Explanation

FY16 funding was decreased due to -\$3.6M Congressional mark against Low Frequency Transmit System (LFTS) for excess funding.

FY17 funding was increased by \$4.413 for E-4B Recapitalization.

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Advanced Extremely High Frequency (AEHF) Compatible Terminal/Presidential National Voice Capability (PNVC)	1.679	24.810	5.233	0.000	5.233
Description: Integrate AEHF Compatible Terminal/PNVC capability onto the E-4B NAOC Platform, to replace the existing MILSTAR/SECN system.					
FY 2015 Accomplishments:					
- Continued E-4B Program Office engineering activities necessary for the integration of the AEHF Terminal/PNVC capability onto an airborne platform.					

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0302015F / <i>E-4B National Airborne Operations Center (NAOC)</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
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<p>- Activities addressed hands on modifications to the terminal in order to produce a proof of concept prototype of the initial integrated solution.</p> <p>FY 2016 Plans:</p> <ul style="list-style-type: none"> - Conduct full year of design and development efforts, to include non-recurring engineering, development of parts and labor for a systems integration lab, early prototyping, and some hardware qualification testing. - Complete risk reduction studies and award development contract. - Develop integrated system to install capability onto first aircraft - Conduct a System Requirements Review (SRR) and prepare for Preliminary Design Review (PDR). <p>FY 2017 Base Plans:</p> <ul style="list-style-type: none"> - Conduct PDR and Critical Design Review (CDR). - Continue integration activities to include interface design and development of A-kit wiring harnesses - Begin planning for prototype install in depot. <p>FY 2017 OCO Plans: N/A</p>					
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<p>Title: Low Frequency Transmit System (LFTS)</p> <p>Description: Replaces the E-4B's legacy Very Low Frequency/Low Frequency (VLF/LF) Transmit System, which is over 35 years old and is past its useful life. This capability is required to comply with Presidential Policy Directive (PPD)-35; to ensure there is assured connectivity between civilian and military leadership and military forces during all stages of conflict and/or national emergency.</p> <p>FY 2015 Accomplishments:</p> <ul style="list-style-type: none"> - Continued with full year of design and development efforts, to include non-recurring engineering, development of parts and labor for a systems integration lab, early prototyping, and some hardware qualification testing. - Conducted a SRR. <p>FY 2016 Plans:</p> <ul style="list-style-type: none"> - Continue with design and development efforts, to include non-recurring engineering, development of parts and labor for a systems integration lab, early prototyping, and some hardware qualification testing. - Conduct PDR. - Prepare for CDR and Material Readiness Review (MRR) 	23.284	51.800	17.794	0.000	17.794
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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0302015F / <i>E-4B National Airborne Operations Center (NAOC)</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
- Purchase prototype kit, test equipment, and RDT&E support equipment in preparation for FY17 installation and testing. FY 2017 Base Plans: - Efforts will involve prototype installation and program test activities. FY 2017 OCO Plans: N/A					
Title: E-4B Recapitalization Description: Recapitalization efforts include those activities related the replacement of the current NAOC fleet. Efforts will involve early acquisition activities, to include but not limited to, preparation for a Materiel Development Decision (MDD), an Analysis of Alternatives (AoA), development of initial requirements/acquisition strategy, risk reduction activities, and other efforts necessary to initiate a recapitalization program. FY 2015 Accomplishments: N/A FY 2016 Plans: - Initiate requirements development - Conduct analysis, concept generation, and acquisition strategy development to prepare for MDD FY 2017 Base Plans: - Continue requirements development - Obtain an MDD - Prepare for and conduct an analysis of alternatives - Stand up a program office - Continue concept generation and acquisition strategy development FY 2017 OCO Plans: N/A	0.000	0.150	7.921	0.000	7.921
Accomplishments/Planned Programs Subtotals	24.963	76.760	30.948	0.000	30.948

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0302015F / <i>E-4B National Airborne Operations Center (NAOC)</i>
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D. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u> <u>Base</u>	<u>FY 2017</u> <u>OCO</u>	<u>FY 2017</u> <u>Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• APAF: BA05: Line Item # E00400: <i>E-4B Nat Airborne Ops Center (NAOC)</i>	17.091	19.237	53.348	0.000	53.348	32.810	40.266	41.086	41.844	Continuing	Continuing
• APAF: BA05: Line Item # 833140: <i>Worldwide Joint Strategic Communication</i>	0.692	0.700	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	-
• APAF: BA06: Line Item # 000999: <i>Initial Spares/Repair Parts</i>	3.426	0.000	5.338	0.000	5.338	3.549	4.298	0.335	0.342	Continuing	Continuing

Remarks

E. Acquisition Strategy

Acquisition Strategy: The acquisition strategy for each specific modification differs based on the urgency of the requirement, definition of the capability, and technology readiness level of the components.

Management Strategy: Program management for all aircraft modifications is executed by Commercial Derivative Aircraft program office at Tinker AFB. The Program Executive Officer (PEO) for Mobility provides management oversight.

Contracting Strategy: Contracting strategy differs for each individual modification, but normally includes a initial risk reduction study contract followed by a development contract. Production installations and sustainment are typically accomplished with a separate contract.

F. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0302015F / E-4B National Airborne Operations Center (NAOC)	Project (Number/Name) 674777 / E-4B Aircraft Modernization
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
AEHF Compatible Terminal-Risk Study 2	C/CPFF	Raytheon, Largo FL : TBD	-	1.679	Aug 2015	0.810	Oct 2015	0.000		0.000		0.000	Continuing	Continuing	2.489
AEHF Compatible Terminal Development	C/CPFF	TBD : TBD	-	0.000		23.800	Mar 2016	5.033	Jul 2017	0.000		5.033	Continuing	Continuing	32.000
LFTS Replacement	SS/CPIF	Boeing, OKC : OKC, OK	-	23.284	Mar 2015	51.600	Apr 2016	17.594	Oct 2016	0.000		17.594	Continuing	Continuing	124.000
E-4B Recapitalization	TBD	TBD : TBD	-	0.000		0.150	Sep 2016	7.921	Apr 2017	0.000		7.921	Continuing	Continuing	TBD
Subtotal				-	24.963	76.360		30.548		0.000		30.548	-	-	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal				-	-	-		-		-		-	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal				-	-	-		-		-		-	-	-	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
PMA (Travel, Support)	Various	Various : TBD	-	0.000		0.400	Dec 2015	0.400	Dec 2016	0.000		0.400	Continuing	Continuing	TBD
Subtotal				-	0.000	0.400		0.400		0.000		0.400	-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force								Date: February 2016					
Appropriation/Budget Activity 3600 / 7				R-1 Program Element (Number/Name) PE 0302015F / E-4B National Airborne Operations Center (NAOC)				Project (Number/Name) 674777 / E-4B Aircraft Modernization					
	Prior Years	FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	24.963		76.760		30.948		0.000		30.948	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0302015F / E-4B National Airborne Operations Center (NAOC)	Project (Number/Name) 674777 / E-4B Aircraft Modernization

	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
AEHF Compatible Terminal/PNVC Risk Reduction	██████████																											
AEHF Compatible Terminal/PNVC MDD			██																									
AEHF Compatible Terminal/PNVC Integration					████████████████████																							
AEHF Compatible Terminal/PNVC Milestone Decision B					██																							
AEHF Compatible Terminal/PNVC PDR									██																			
AEHF Compatible Terminal/PNVC CDR									██																			
AEHF Compatible Terminal/PNVC Milestone Decision C													██															
AEHF Compatible Terminal/PNVC Production													████████████████████															
AEHF Compatible Terminal/PNVC IOC																	██											
LFTS Modification Design and Development	██████████████████																											
LFTS Milestone Decision B		██																										
LFTS Modification PDR					██																							
LFTS Modification CDR					██																							
LFTS Modification Integration and Testing									██████████████																			
LFTS Modification Milestone Decision C									██																			
LFTS Production									████████████████████																			
LFTS Modification IOC													██															
LFTS Modification FOC																					██							
E-4B Recapitalization					██████████████████																							

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0302015F / E-4B National Airborne Operations Center (NAOC)	Project (Number/Name) 674777 / E-4B Aircraft Modernization

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
AEHF Compatible Terminal/PNVC Risk Reduction	1	2015	2	2016
AEHF Compatible Terminal/PNVC MDD	3	2015	3	2015
AEHF Compatible Terminal/PNVC Integration	2	2016	1	2019
AEHF Compatible Terminal/PNVC Milestone Decision B	2	2016	2	2016
AEHF Compatible Terminal/PNVC PDR	1	2017	1	2017
AEHF Compatible Terminal/PNVC CDR	3	2017	3	2017
AEHF Compatible Terminal/PNVC Milestone Decision C	2	2018	2	2018
AEHF Compatible Terminal/PNVC Production	2	2018	4	2021
AEHF Compatible Terminal/PNVC IOC	1	2020	1	2020
LFTS Modification Design and Development	1	2015	4	2016
LFTS Milestone Decision B	2	2015	2	2015
LFTS Modification PDR	1	2016	1	2016
LFTS Modification CDR	3	2016	3	2016
LFTS Modification Integration and Testing	1	2017	1	2018
LFTS Modification Milestone Decision C	1	2017	1	2017
LFTS Production	1	2017	1	2021
LFTS Modification IOC	1	2019	1	2019
LFTS Modification FOC	1	2021	1	2021
E-4B Recapitalization	4	2016	4	2021

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0303001F / <i>Family of Advanced BLoS Terminals (FAB-T)</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	-	0.000	3.895	42.378	0.000	42.378	0.000	0.000	0.000	0.000	0.000	46.273
672490: <i>Family of Advanced Beyond Line-of-Sight Terminals (FAB-T)</i>	-	0.000	3.895	42.378	0.000	42.378	0.000	0.000	0.000	0.000	0.000	46.273
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Note

Prior Years Funding \$180.602 was executed in PE 0303601F

In FY2014, PE 0303601F MILSATCOM Terminals, Project 672489 Family of Advanced Beyond Line-of-Sight Terminals(FAB-T) transferred to PE 0303601F MILSATCOM Terminals, Project 672490 Family of Advanced Beyond Line-of-Sight Terminals(FAB-T) in order to provide improved visibility.

In FY2016, PE 0303601F, MILSATCOM Terminals, Project 672490, Family of Advanced Beyond Line-of-Sight Terminals(FAB-T) transferred to PE 0303001F Family of Advanced BLoS Terminals (FAB-T), Project Family of Advanced Beyond Line-of-Sight Terminals(FAB-T) in order to provide improved visibility.

A. Mission Description and Budget Item Justification

The Family of Advanced Beyond Line-of-Sight Terminals (FAB-T) program replaces legacy Milstar terminals and will provide Extremely High Frequency (EHF), protected high data rate communication for nuclear and conventional forces to include Presidential and National Voice Conferencing (PNVC). FAB-T will provide this new, highly secure, state-of-the-art capability for DoD platforms to include strategic platforms and airborne/ground command posts via Milstar, AEHF, and Enhanced Polar System (EPS) satellites. FAB-T terminals will also support the critical command and control (C2) of the Milstar, AEHF and EPS satellite constellations. In FY16, the Air Force continued development of the FAB-T terminal, performing systems engineering, architectures, continuation of test efforts for Initial Operational Test & Evaluation (IOT&E) & other activities to meet current & future emerging SATCOM requirements.

The Presidential and National Voice Conferencing (PNVC) capability is a critical element of the Nuclear Command, Control, and Communications (NC3) System. There are several components being developed that must be synchronized to expeditiously field this capability. In May 2015, the Air Force was designated as the end-to-end PNVC Integrator. The Defense Information Systems Agency will transfer \$15M RDT&E to the Air Force for PNVC Integration. The Air Force will request a Prior Approval reprogramming for the remaining FY16 requirements. This continuing effort was previously programmed and budgeted in DISA's PE 0303126K/Long-Haul Communications - DCS, PC01: Presidential and National Voice Conferencing Equipment and is not a New Start.

This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development	R-1 Program Element (Number/Name) PE 0303001F I Family of Advanced BLoS Terminals (FAB-T)
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B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	0.000	3.907	0.000	0.000	0.000
Current President's Budget	0.000	3.895	42.378	0.000	42.378
Total Adjustments	0.000	-0.012	42.378	0.000	42.378
• Congressional General Reductions	0.000	-0.012			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	42.378	0.000	42.378

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
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Title: FAB-T Development - 3.795 14.555

Description: The FAB-T program will provide EHF voice and data MILSATCOM for nuclear and conventional forces as well as airborne and ground command posts with connectivity to Milstar, AEHF, and EPS satellites.

FY 2016 Plans:

FAB-T will continue development efforts on CPT and conduct the Ground Transportable Antenna (GTA) Functional Configuration Audit (FCA) and conduct ground and flight tests on new antenna configurations.

FY 2017 Plans:

FAB-T will continue development efforts on CPT and will conduct FCA on the new antenna configuration, conduct Block 2 FCA/ Physical Configuration Audit (PCA), and continue flight and ground tests.

Title: PNVC Integrator - 0.100 27.823

Description: PNVC is the Survivable Emergency Conferencing Network (SECN) replacement capability for the AEHF satellite system which provides anti-jam, anti-scintillation, survivable, and endurable voice communications for national and strategic users. The PNVC capability consists of constituent programs being developed and produced by other organizations. This program will integrate test and support fielding of hardware from these other programs. PNVC components will be installed at ground fixed and mobile command locations, as well as in the airborne E-4B, E-6B and Very Important Person Special Airlift Mission (VIPSAM) aircraft.

FY 2016 Plans:

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0303001F / <i>Family of Advanced BLoS Terminals (FAB-T)</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
PNVC has developed a requirements traceability matrix among previously approved operational requirements documents to individual component specifications to ensure that a bi-directional system specification allocation and decomposition review and audit can be completed. PNVC will work towards a Material Development Decision to gain entry into the acquisition lifecycle as an ACAT III Program of Record, anticipated in January 2016. Conduct Independent Logistics Health Assessment to garner feedback on sufficiency of component program training and TO's from a system perspective. In FY16, PNVC will award an ID/IQ delivery order solicitation to support the system specification technical review and audit and subsequent factory integration test activities. FY 2017 Plans: Conduct PNVC Technical Review of system specification traceability, verification cross reference matrix, and system test verification plan for Program Office and End User authentication. Providing logistics support for all PNVC components and sustainment activities (including terminals). Execute site verification, validation, installation and checkout activities. Training and technical manuals and identifying deficiencies in the PNVC system. Will also initiate market research for product support integrator contract to address enterprise logistics shortfalls dependent on results from Independent Logistics Health Assessment.			
Accomplishments/Planned Programs Subtotals	-	3.895	42.378

D. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u> <u>Base</u>	<u>FY 2017</u> <u>OCO</u>	<u>FY 2017</u> <u>Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• APAF; BA05, FBLOST:: <i>FAB-T</i>	0.000	43.844	4.673	0.000	4.673	22.216	14.410	1.985	1.589	Continuing	Continuing
• SPAF; BA03, FBLOST:: <i>FAB-T</i>	0.000	52.192	88.963	0.000	88.963	125.225	21.266	32.357	8.569	Continuing	Continuing
• SPAF; BA03, PNVC: <i>PNVC</i>	0.000	0.000	0.000	0.000	0.000	19.652	17.862	13.495	7.839	Continuing	Continuing
• APAF; Aircraft Spares and Repair...: <i>FAB-T</i>	0.000	3.253	3.561	0.000	3.561	1.341	6.191	0.057	0.001	Continuing	Continuing
• SPAF; SSPARE Spares and Repair P...: <i>FAB-T</i>	0.000	0.000	14.078	0.000	14.078	3.590	20.752	0.000	0.000	Continuing	Continuing
• OPAF; BA03, 836700: <i>FAB-T</i>	0.000	44.436	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	-
• 0303601F Project 672490: <i>FAB-T</i>	54.678	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	54.678

Remarks
 Prior through FY15 APAF and OTHACF are in BA: 05, PE: 0303601F Lines #59 and #64.

 Prior through FY14 OPAF are in BA: 03, PE: 0303601F BPAC: 836780 Line #48.

 FY15 OPAF PROJECT: 836780 transferred to PROJECT: 836700 Line #48 same program element.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0303001F / <i>Family of Advanced BLoS Terminals (FAB-T)</i>
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D. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u> <u>Base</u>	<u>FY 2017</u> <u>OCO</u>	<u>FY 2017</u> <u>Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
FY15 APAF Spares and Repair Parts and FY15 OPAF Spares and Repair Parts are in PE: 0303601F.											
In FY16 APAF Spares and Repair Parts and FY16 OPAF Spares and Repair parts PE: 0303601F transferred to PE: 0303001F											
In FY16 OPAF Project 836780 transferred to PROJECT: Space Programs FBLOST, same program element.											
In FY17 OPAF Spares and Repair Parts transferred to PROJECT: Space Programs SSPARE, same program element.											

E. Acquisition Strategy

FAB-T Acquisition Strategy: In FY12, the government restructured the FAB-T development program to introduce competition into the acquisition strategy in order to reduce risk in delivering this capability as well as to drive down production costs. To ensure the best value to the government, the Air Force awarded production contracts in September 2013 to both contractors (Boeing and Raytheon). The production contracts began with production planning for both contractors. In June 2014, the Air Force down-selected to Raytheon. Development will continue with Raytheon and production of FAB-T Command Post Terminals. The first Production contract options to produce CPT terminals were exercised after a successful Milestone C decision was approved September 1, 2015.

PNVC Acquisition Strategy: On May 15, 2015 the Deputy Secretary of Defense assigned the PNVC End-to-End Integration responsibility to the Air Force; effective May 16, 2015, SAF/AQ designated the AFPEO for Space as the PEO. The PNVC End-to-End Integrator program is responsible for requirements traceability, End-to-End system testing, site installation and checkout activities, training and technical manuals, network transition support, identifying deficiencies in the PNVC capability, and logistics supports for all PNVC components.

F. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0303001F / Family of Advanced BLoS Terminals (FAB-T)	Project (Number/Name) 672490 / Family of Advanced Beyond Line-of-Sight Terminals (FAB-T)
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
FAB-T Development (WS)	C/FFP	Raytheon : Marlborough, MA	-	0.000		0.183	Dec 2015	0.000		0.000		0.000	0.000	0.183	0.000
FAB-T Technical Mission Analysis	Various	Various : Various, MA	-	0.000		1.352	Jan 2016	1.600		0.000		1.600	Continuing	Continuing	-
PNVC Development (WS)	Various	Not specified. : TBD	-	0.000		0.000		17.023		0.000		17.023	0.000	17.023	-
PNVC Technical Mission Analysis	Various	Not specified. : TBD	-	0.000		0.000		6.800		0.000		6.800	Continuing	Continuing	-
Subtotal			-	0.000		1.535		25.423		0.000		25.423	-	-	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
FAB-T Government Test and LDTO Support	Various	Various : Various	-	0.000		0.393	Jan 2016	10.555		0.000		10.555	0.000	10.948	-
PNVC Government Test and LDTO Support	Various	Not specified. : TBD	-	0.000		0.000		0.500		0.000		0.500	Continuing	Continuing	-
Subtotal			-	0.000		0.393		11.055		0.000		11.055	-	-	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
FAB-T A&AS	Various	Various : TBD	-	0.000		1.632		1.300		0.000		1.300	Continuing	Continuing	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force												Date: February 2016			
Appropriation/Budget Activity 3600 / 7				R-1 Program Element (Number/Name) PE 0303001F / Family of Advanced BLoS Terminals (FAB-T)				Project (Number/Name) 672490 / Family of Advanced Beyond Line- of-Sight Terminals (FAB-T)							
Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
FAB-T Other Support	C/CPAF	Not specified. : TBD	-	0.000		0.335		1.100		0.000		1.100	Continuing	Continuing	-
PNVC A&AS	Various	Not specified. : TBD	-	0.000		0.000		2.100		0.000		2.100	Continuing	Continuing	-
PNVC Other Support	Various	Various : TBD	-	0.000		0.000		1.400		0.000		1.400	Continuing	Continuing	-
Subtotal			-	0.000		1.967		5.900		0.000		5.900	-	-	-
Project Cost Totals			-	0.000		3.895		42.378		0.000		42.378	-	-	-
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0303001F / <i>Family of Advanced BLoS Terminals (FAB-T)</i>	Project (Number/Name) 672490 / <i>Family of Advanced Beyond Line-of-Sight Terminals (FAB-T)</i>

	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
FAB-T Raytheon Development Contract	[REDACTED]																											
FAB-T Government Test Support	[REDACTED]																											
Milestone C Decision				[REDACTED]																								
FAB-T Production Contract Options	[REDACTED]																											
PNVC Integrator	[REDACTED]																											

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0303001F / <i>Family of Advanced BLoS Terminals (FAB-T)</i>	Project (Number/Name) 672490 / <i>Family of Advanced Beyond Line-of-Sight Terminals (FAB-T)</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
FAB-T Raytheon Development Contract	1	2015	4	2016
FAB-T Government Test Support	1	2015	4	2017
Milestone C Decision	4	2015	4	2015
FAB-T Production Contract Options	4	2015	4	2021
PNVC Integrator	1	2015	4	2017

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0303131F / <i>Minimum Essential Emergency Communications Network (MEECN)</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	-	87.240	74.712	47.471	0.000	47.471	74.680	82.570	18.500	6.121	Continuing	Continuing
672832: <i>MEECN System Improvements</i>	-	0.860	0.894	0.903	0.000	0.903	0.920	0.937	0.955	0.973	Continuing	Continuing
672835: <i>Common VLF/LF Receiver Inc 2</i>	-	0.000	0.000	15.545	0.000	15.545	57.840	64.676	12.488	0.000	Continuing	Continuing
676029: <i>Global Aircrew Strategic Network Terminal</i>	-	86.380	69.447	19.835	0.000	19.835	0.598	0.162	0.045	0.047	Continuing	Continuing
676030: <i>Global ASNT Inc 2</i>	-	0.000	4.371	11.188	0.000	11.188	15.322	16.795	5.012	5.101	Continuing	Continuing

Note

This program, BA 07 PE 0303131F, project 672835, CVR Inc 2, is a new start.

This program, BA 07 PE 0303131F, project 676030, Global ASNT Inc 2 was initially funded in project 676029 as a new start for FY15.

A. Mission Description and Budget Item Justification

Nuclear Deterrence Operations (NDO) is an Air Force Core Function. Within this core function, Nuclear Command and Control (NC2) is the exercise of authority and direction by the President, as Commander in Chief, through established command lines, over nuclear weapon operations of military forces. The President's authority and direction are exercised through the Nuclear Command and Control System (NCCS). The NCCS is the designated combination of flexible and enduring elements including facilities, equipment, communications, procedures, personnel, and the structure in which these elements are integrated, all of which are essential for planning, directing, and controlling nuclear weapon operations.

The Minimum Essential Emergency Communications Network (MEECN) portfolio modernizes the systems necessary to effectively provide assured communications connectivity between the President and the strategic deterrence forces in stressed environments.

MEECN System Improvements (MSI) is a long-range planning process with users (Air Force Global Strike Command (AFGSC), Air Combat Command (ACC), Air Force Space Command (AFSPC), Air Mobility Command (AMC), Air Force Special Operations Command (AFSOC), US Strategic Command (USSTRATCOM), and the Navy) to monitor and assess the performance of Nuclear Command, Control, and Communications (NC3) systems and develop recommendations for current and future strategic and tactical architectures, requirements, and issues based on available and emerging technologies. MSI is used to conduct technology testing; analyze technology strategies; conduct requirement trade space analysis, risk reduction demonstrations, and mission analysis; and build technology roadmaps as proactive support to the NC3 community. MSI performs analysis, integration, and testing activities for the NC3 Weapon System.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0303131F / <i>Minimum Essential Emergency Communications Network (MEECN)</i>	
<p>Common Very Low Frequency/Low Frequency (VLF/LF) Receiver (CVR) Increment 2 (CVR Inc 2) will deliver a survivable, beyond-line-of-sight path for Emergency Action Message (EAM) reception. The intent of CVR Inc 2 is to develop and produce a common VLF/LF receiver with an interoperable waveform for future platform integration to include airborne and ground based nodes, improve system performance, and reduce supportability costs through commonality.</p> <p>Global Aircrew Strategic Network Terminal (Global ASNT) replaces inadequate, unsustainable strategic communications equipment at bomber, tanker and reconnaissance Wing Command Posts (WCPs), Nuclear Task Forces, Munitions Support Squadrons (MUNSS), and for Mobile Support Teams (MSTs). Global ASNT is a ground-based system that will provide survivable, secure communication paths to receive Emergency Action Messages (EAMs), Force Management messages, and Force Direction messages and disseminate them to bomber, tanker, and reconnaissance aircrews.</p> <p>Global ASNT is being fielded in separate capability increments. Global ASNT Increment 1 (Inc 1) includes early system engineering support for the planning and development for the future Global ASNT Increments.</p> <p>Global ASNT Inc 1 fields required Extremely High Frequency/Advanced Extremely High Frequency (EHF/AEHF) capabilities and replaces inadequate, unsustainable strategic mobile and fixed-site Single Channel Anti-jam Man-Portable (SCAMP) terminals and Secure, Mobile, Anti-Jam, Reliable, Tactical – Terminal (SMART-T) equipment.</p> <p>Global ASNT Increment 2 delivers a modernized Aircrew Alerting System (AAS) consisting of personal and general alerting equipment, and High Frequency (HF) and Ultra High Frequency (UHF) capabilities. Increment 2 replaces inadequate, unsustainable Electromagnetic Pulse Hardened Dispersal Communication (EHDC) systems and Aircrew Alerting Communications Electromagnetic Pulse (AACE) systems.</p> <p>Global ASNT Increment 3 is planned to deliver a Very Low Frequency (VLF)/Low Frequency (LF) communications receive capability.</p> <p>This program is in Budget Activity 07, Operational System Development, because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal years.</p>		

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0303131F / <i>Minimum Essential Emergency Communications Network (MEECN)</i>
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B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	80.882	75.062	32.000	0.000	32.000
Current President's Budget	87.240	74.712	47.471	0.000	47.471
Total Adjustments	6.358	-0.350	15.471	0.000	15.471
• Congressional General Reductions	0.000	-0.350			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	9.000	0.000			
• SBIR/STTR Transfer	-2.642	0.000			
• Other Adjustments	0.000	0.000	15.471	0.000	15.471

Change Summary Explanation

FY15 reprogramming for Global ASNT Inc 1 (project 676029) to correct funds alignment due to modified sub-contracts spend plan.

FY15 funding for Global ASNT Inc 2 (project 676030) not reflected due to timing. \$1.9M approved above threshold reprogramming received permitting new start authority.

The FY17 funding request was increased by \$15.545M to begin CVR Inc 2 (project 672835) development.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force										Date: February 2016		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0303131F / <i>Minimum Essential Emergency Communications Network (MEECN)</i>				Project (Number/Name) 672832 / <i>MEECN System Improvements</i>			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
672832: <i>MEECN System Improvements</i>	-	0.860	0.894	0.903	0.000	0.903	0.920	0.937	0.955	0.973	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

MEECN System Improvements (MSI) is a long-range planning process with users (Air Force Global Strike Command (AFGSC), Air Combat Command (ACC), Air Force Space Command (AFSPC), Air Mobility Command (AMC), Air Force Special Operations Command (AFSOC), US Strategic Command (USSTRATCOM), and the Navy) to monitor and assess the performance of Nuclear Command, Control, and Communications (NC3) systems and develop recommendations for current and future strategic and tactical architectures, requirements, and issues based on available and emerging technologies. MSI is used to conduct technology testing; analyze technology strategies; conduct requirement trade space analysis, risk reduction demonstrations, and mission analysis; and build technology roadmaps as proactive support to the NC3 community. MSI performs analysis, integration, and testing activities for the NC3 Weapon System.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: MEECN System Improvements	0.860	0.894	0.903	0.000	0.903
Description: Conduct Nuclear Command, Control, and Communication (NC3) technology testing, integrate the NC3 Weapon System, build comprehensive technology strategies and roadmaps. Conduct VLF/LF tradeoff analysis. Deliver results of analytic tasks in an annual NC3 report.					
FY 2015 Accomplishments: Continued to refresh NC3 Architecture Roadmap Performed bomber message reception assessment Continued model improvement efforts					
FY 2016 Plans: Continue to refresh NC3 Architecture Roadmap Conduct integration and test planning for the NC3 Weapon System Perform VLF/LF coverage analysis Test Transverse Electric/Transverse Magnetic (TE/TM) antenna performance verification Perform Electromagnetic Interference (EMI) coverage impact analysis Conduct antenna obsolescence investigation					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0303131F / <i>Minimum Essential Emergency Communications Network (MEECN)</i>	Project (Number/Name) 672832 / <i>MEECN System Improvements</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Continue model improvement efforts					
<i>FY 2017 Base Plans:</i> Continue to refresh NC3 Architecture Roadmap Conduct integration and test tasks for the NC3 Weapon System Perform VLF/LF loss of timing analysis Perform analysis of VLF/LF coverage with FSBS S-Flex					
<i>FY 2017 OCO Plans:</i> N/A					
Accomplishments/Planned Programs Subtotals	0.860	0.894	0.903	0.000	0.903

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• None: <i>None</i>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	-

Remarks

D. Acquisition Strategy

MSI will continue to evaluate the performance of the NC3 Weapon System, by assessing performance and technology areas for improvement with the assistance of expert technical support from FFRDCs, UARCs, and may include competitively awarded technical support contracts with industry. Johns Hopkins University/Applied Physics Laboratory will support NC3 Weapon System Architecture Roadmap updates.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0303131F / <i>Minimum Essential Emergency Communications Network (MEECN)</i>	Project (Number/Name) 672832 / <i>MEECN System Improvements</i>
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
MSI - NC3 Roadmap	MIPR	JHU APL : Laurel, MD	-	0.415	Mar 2015	0.411	Mar 2016	0.417	Mar 2017	0.000		0.417	Continuing	Continuing	TBD
Subtotal			-	0.415		0.411		0.417		0.000		0.417	-	-	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
MSI PMA (Eng/Acq Spt/ MITRE/Travel/IMPAC)	Various	Various : Various	-	0.445	Dec 2014	0.483	Dec 2015	0.486	Dec 2016	0.000		0.486	Continuing	Continuing	TBD
Subtotal			-	0.445		0.483		0.486		0.000		0.486	-	-	-

			Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	0.860	0.894	0.903	0.000	0.903	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0303131F / <i>Minimum Essential Emergency Communications Network (MEECN)</i>	Project (Number/Name) 672832 / <i>MEECN System Improvements</i>

	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021							
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
MEECN System Improvement																																
NC3 Annual Report - FY15																																
NC3 Annual Report - FY16																																
NC3 Annual Report - FY17																																
NC3 Annual Report - FY18																																
NC3 Annual Report - FY19																																
NC3 Annual Report - FY20																																
NC3 Annual Report - FY21																																

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0303131F / <i>Minimum Essential Emergency Communications Network (MEECN)</i>	Project (Number/Name) 672832 / <i>MEECN System Improvements</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
MEECN System Improvement	1	2015	4	2021
NC3 Annual Report - FY15	4	2015	4	2015
NC3 Annual Report - FY16	4	2016	4	2016
NC3 Annual Report - FY17	4	2017	4	2017
NC3 Annual Report - FY18	4	2018	4	2018
NC3 Annual Report - FY19	4	2019	4	2019
NC3 Annual Report - FY20	4	2020	4	2020
NC3 Annual Report - FY21	4	2021	4	2021

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0303131F / <i>Minimum Essential Emergency Communications Network (MEECN)</i>	Project (Number/Name) 672835 / <i>Common VLF/LF Receiver Inc 2</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
672835: <i>Common VLF/LF Receiver Inc 2</i>	-	0.000	0.000	15.545	0.000	15.545	57.840	64.676	12.488	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

This program, BA 07 PE 0303131F, project 672835, CVR Inc 2, is a new start.

A. Mission Description and Budget Item Justification

Common Very Low Frequency/Low Frequency (VLF/LF) Receiver (CVR) Increment 2 (CVR Inc 2) will deliver a survivable, beyond-line-of-sight path for Emergency Action Message (EAM) reception. The intent of CVR Inc 2 is to develop and produce a common VLF/LF receiver with an interoperable waveform for future platform integration to include airborne and ground based nodes, improve system performance, and reduce supportability costs through commonality.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: CVR Inc 2	0.000	0.000	15.545	0.000	15.545
Description: Pre-Milestone B Activities					
FY 2015 Accomplishments: N/A					
FY 2016 Plans: N/A					
FY 2017 Base Plans: Initiate pre-development and upfront system engineering activities Perform requirements and technology analysis and trade studies Conduct market research and program risk analysis Develop acquisition strategy in preparation for Milestone B Draft system requirements documentation and validate requirements Develop new VLF/LF waveform standard					
FY 2017 OCO Plans:					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0303131F / <i>Minimum Essential Emergency Communications Network (MEECN)</i>	Project (Number/Name) 672835 / <i>Common VLF/LF Receiver Inc 2</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
N/A					
Accomplishments/Planned Programs Subtotals	0.000	0.000	15.545	0.000	15.545

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• 834210: CVR Inc 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	37.805	51.001	-	-

Remarks

D. Acquisition Strategy

CVR Inc 2 will use a full and open competitive source selection to award an EMD contract for Increment 2. CVR Inc 2 will use a competitive approach to fulfill the overall requirements of the program.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force												Date: February 2016				
Appropriation/Budget Activity				R-1 Program Element (Number/Name)					Project (Number/Name)							
3600 / 7				PE 0303131F / Minimum Essential Emergency Communications Network (MEECN)					672835 / Common VLF/LF Receiver Inc 2							
Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
CVR Inc 2 - Early Development	TBD	TBD : TBD	-	0.000		0.000		8.127	Jan 2017	0.000		8.127	Continuing	Continuing	-	
Subtotal			-	0.000		0.000		8.127		0.000		8.127	-	-	-	
Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
GFE	Various	Not specified : TBD	-	0.000		0.000		2.292	Jun 2017	0.000		2.292	Continuing	Continuing	-	
Subtotal			-	0.000		0.000		2.292		0.000		2.292	-	-	-	
Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Government Test Planning	TBD	Not Specified : TBD	-	0.000		0.000		0.207	Feb 2017	0.000		0.207	Continuing	Continuing	-	
NSA Certification Planning	TBD	Not Specified : TBD	-	0.000		0.000		0.115	Oct 2016	0.000		0.115	Continuing	Continuing	-	
Subtotal			-	0.000		0.000		0.322		0.000		0.322	-	-	-	
Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
PMA (Eng/Acq Spt/Travel/IMPAC)	Various	Various : TBD	-	0.000		0.000		4.804	Oct 2016	0.000		4.804	Continuing	Continuing	-	
Subtotal			-	0.000		0.000		4.804		0.000		4.804	-	-	-	

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force								Date: February 2016		
Appropriation/Budget Activity 3600 / 7			R-1 Program Element (Number/Name) PE 0303131F / <i>Minimum Essential Emergency Communications Network (MEECN)</i>				Project (Number/Name) 672835 / <i>Common VLF/LF Receiver Inc 2</i>			
	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract	
Project Cost Totals	-	0.000	0.000	15.545	0.000	15.545	-	-	-	

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0303131F / <i>Minimum Essential Emergency Communications Network (MEECN)</i>	Project (Number/Name) 672835 / <i>Common VLF/LF Receiver Inc 2</i>

	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Requirements Development									■	■	■	■																
Early Systems Engineering									■	■	■	■																
Materiel Development Decision (MDD)									■																			
RFP Release										■																		
Milestone B Decision													■															
Contract Award													■															
Engineering and Manufacturing Development (EMD)													■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Preliminary Design Review (PDR)																	■											
Critical Design Review (CDR)																					■							
Milestone C Decision																									■			
Production and Fielding																									■	■	■	■

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0303131F / <i>Minimum Essential Emergency Communications Network (MEECN)</i>	Project (Number/Name) 672835 / <i>Common VLF/LF Receiver Inc 2</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Requirements Development	1	2017	3	2017
Early Systems Engineering	1	2017	4	2017
Materiel Development Decision (MDD)	2	2017	2	2017
RFP Release	3	2017	3	2017
Milestone B Decision	1	2018	1	2018
Contract Award	2	2018	2	2018
Engineering and Manufacturing Development (EMD)	2	2018	1	2021
Preliminary Design Review (PDR)	2	2019	2	2019
Critical Design Review (CDR)	1	2020	1	2020
Milestone C Decision	1	2021	1	2021
Production and Fielding	1	2021	4	2021

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force										Date: February 2016		
Appropriation/Budget Activity 3600 / 7				R-1 Program Element (Number/Name) PE 0303131F / <i>Minimum Essential Emergency Communications Network (MEECN)</i>				Project (Number/Name) 676029 / <i>Global Aircrew Strategic Network Terminal</i>				
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
676029: <i>Global Aircrew Strategic Network Terminal</i>	-	86.380	69.447	19.835	0.000	19.835	0.598	0.162	0.045	0.047	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Global ASNT replaces inadequate, unsustainable strategic communications equipment at bomber, tanker and reconnaissance Wing Command Posts (WCPs), Nuclear Task Forces, Munitions Support Squadrons (MUNSS), and for Mobile Support Teams (MSTs). Global ASNT is a ground-based system that will provide survivable, secure communication paths to receive Emergency Action Messages (EAMs), Force Management messages, and Force Direction messages and disseminate them to bomber, tanker, and reconnaissance aircrews.

Global ASNT is being fielded in separate capability increments. Global ASNT Increment 1 (Inc 1) includes early system engineering support for the planning and development for the future Global ASNT Increments.

Global ASNT Inc 1 fields required Extremely High Frequency/Advanced Extremely High Frequency (EHF/AEHF) capabilities and replaces inadequate, unsustainable strategic mobile and fixed-site Single Channel Anti-jam Man-Portable (SCAMP) terminals and Secure, Mobile, Anti-Jam, Reliable, Tactical – Terminal (SMART-T) equipment.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Global ASNT Inc 1	86.380	69.447	19.835	0.000	19.835
Description: Engineering & Manufacturing Development (EMD)					
FY 2015 Accomplishments:					
Conducted Preliminary Design Review (PDR) and Critical Design Review (CDR)					
Continued development of EHF and AEHF integration of modem design, cryptographic upgrade, software development, and antenna integration					
Conducted test planning and conducted preliminary testing of developed hardware and software					
Initiated Global ASNT Inc 2 as FY15 new start via ATR request					
FY 2016 Plans:					
Continue development of EHF and AEHF integration of modem design, cryptographic upgrade, software development, antenna integration					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0303131F / <i>Minimum Essential Emergency Communications Network (MEECN)</i>	Project (Number/Name) 676029 / <i>Global Aircrew Strategic Network Terminal</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Contractor test developed hardware and software Prepare for Government Developmental Testing/Operational Testing (DT/OT) in preparation for Milestone C Begin MS C documentation and Engineering Change Orders (ECOs) Conduct satellite network simulations and associated MITRE Lab analytic activities through Direct Mission Support (DMS)/Program Management Administration (PMA)					
<i>FY 2017 Base Plans:</i> Complete Government Developmental Testing/Operational Testing (DT/OT) in preparation for Milestone C Resolve any Deficiency Reports (DRs) identified in DT/OT testing Complete MS C documentation and Engineering Change Orders (ECOs) Complete satellite network simulations and associated MITRE lab analytic activities through DMS/PMA					
<i>FY 2017 OCO Plans:</i> N/A					
Accomplishments/Planned Programs Subtotals	86.380	69.447	19.835	0.000	19.835

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• OPAF: BA03: Line item # 834210: <i>Global ASNT Inc 1</i>	1.457	5.232	198.925	0.000	198.925	130.188	40.486	11.796	12.009	Continuing	Continuing

Remarks

D. Acquisition Strategy
 Global ASNT used a full and open competitive approach to award an EMD contract for Increment 1. Global ASNT will continue to use a competitive incremental approach to fulfill the overall requirements for Increments 2 and 3.

E. Performance Metrics
 Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force											Date: February 2016				
Appropriation/Budget Activity 3600 / 7				R-1 Program Element (Number/Name) PE 0303131F / <i>Minimum Essential Emergency Communications Network (MEECN)</i>					Project (Number/Name) 676029 / <i>Global Aircrew Strategic Network Terminal</i>						

Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Global ASNT Inc 1 - Engineering & Manufacturing Development	C/FPIF	Raytheon : Marlborough, MA	-	76.537	Oct 2014	52.930	Oct 2015	12.888	Oct 2016	0.000		12.888	Continuing	Continuing	TBD
Global ASNT Inc 1 - Satellite Simulations	SS/FFP	MIT/Lincoln Laboratory : Lexington, MA	-	0.835	Jan 2015	1.380	Jan 2016	0.044	Oct 2016	0.000		0.044	Continuing	Continuing	TBD
Subtotal			-	77.372		54.310		12.932		0.000		12.932	-	-	-

Remarks
 - Raytheon Global ASNT Inc 1 EMD contract for FY15 and FY16 is an incrementally funded continuing effort on the existing contract. Incremental funding is projected for October FY15 and October FY16, as appropriated funds become available to obligate on this FPIF type contract.

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Global ASNT Inc 1 - MITRE Lab	SS/CPFF	MITRE : Bedford, MA	-	1.276	Oct 2014	0.354	Oct 2015	0.330	Oct 2016	0.000		0.330	Continuing	Continuing	-
Global ASNT Inc 1 - Software Support	Various	Various : TBD	-	1.123	Feb 2015	4.375	Oct 2015	0.000		0.000		0.000	Continuing	Continuing	-
Global ASNT Inc 1 - GFE	Various	Various : TBD	-	0.046	Apr 2015	0.002	Feb 2016	0.000		0.000		0.000	Continuing	Continuing	-
Subtotal			-	2.445		4.731		0.330		0.000		0.330	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Global ASNT Inc 1 - Government Test and Evaluation	Various	Various : TBD	-	0.471	Nov 2014	1.003	Nov 2015	0.791	Nov 2016	0.000		0.791	Continuing	Continuing	TBD

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force											Date: February 2016				
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0303131F / <i>Minimum Essential Emergency Communications Network (MEECN)</i>						Project (Number/Name) 676029 / <i>Global Aircrew Strategic Network Terminal</i>				

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Global ASNT Inc 1 - NSA	MIPR	NSA, Maryland : TBD	-	0.010	Jan 2015	0.445	Jan 2016	0.156	Jan 2017	0.000		0.156	Continuing	Continuing	-
Subtotal			-	0.481		1.448		0.947		0.000		0.947	-	-	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Global ASNT Inc 1 - PMA (Eng/Acq Support, Travel)	Various	Various : TBD	-	3.261	Nov 2014	4.704	Nov 2015	2.608	Nov 2016	0.000		2.608	Continuing	Continuing	TBD
Global ASNT Inc 1 - PMA (MITRE)	SS/CPFF	MITRE : Bedford, MA	-	2.821	Oct 2014	4.254	Oct 2015	3.018	Oct 2016	0.000		3.018	Continuing	Continuing	TBD
Subtotal			-	6.082		8.958		5.626		0.000		5.626	-	-	-

			Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	86.380	69.447	19.835	0.000	19.835	-	-	-

Remarks

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0303131F / <i>Minimum Essential Emergency Communications Network (MEECN)</i>	Project (Number/Name) 676029 / <i>Global Aircrew Strategic Network Terminal</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Global ASNT Inc 1 - Engineering and Manufacturing Development	1	2015	2	2017
Global ASNT Inc 1 - Preliminary Design Review (PDR)	1	2015	1	2015
Global ASNT Inc 1 - Critical Design Review (CDR)	3	2015	3	2015
Global ASNT Inc 1 - Test	2	2016	2	2017
Global ASNT Inc 1 - Milestone C Decision	2	2017	2	2017
Global ASNT Inc 1 - Production and Deployment	2	2017	1	2020
Global ASNT Inc 1 - IOC	3	2018	3	2018
Global ASNT Inc 1 - Interim Contractor Support	4	2018	3	2020
Global ASNT Inc 1 - FOC	1	2020	1	2020

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0303131F / <i>Minimum Essential Emergency Communications Network (MEECN)</i>	Project (Number/Name) 676030 / <i>Global ASNT Inc 2</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
676030: <i>Global ASNT Inc 2</i>	-	0.000	4.371	11.188	0.000	11.188	15.322	16.795	5.012	5.101	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

This program, BA 07 PE 0303131F, project 676030, Global ASNT Inc 2 was initially funded in project 676029 (Global ASNT Inc 1) as a new start for FY15. Approved FY15 new start funding of \$1.9M is not yet reflected.

A. Mission Description and Budget Item Justification

Global ASNT replaces inadequate, unsustainable strategic communications equipment at bomber, tanker and reconnaissance Wing Command Posts (WCPs), Nuclear Task Forces, Munitions Support Squadrons (MUNSS), and for Mobile Support Teams (MSTs). Global ASNT is a ground-based system that will provide survivable, secure communication paths to receive Emergency Action Messages (EAMs), Force Management messages, and Force Direction messages and disseminate them to bomber, tanker, and reconnaissance aircrews.

Global ASNT is being fielded in separate capability increments.

Global ASNT Increment 2 delivers a modernized Aircrew Alerting System (AAS) consisting of personal and general alerting equipment, and High Frequency (HF) and Ultra High Frequency (UHF) capabilities. Increment 2 replaces inadequate, unsustainable Electromagnetic Pulse Hardened Dispersal Communication (EHDC) systems and Aircrew Alerting Communications Electromagnetic Pulse (AACE) systems.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Global ASNT Inc 2	0.000	4.371	11.188	0.000	11.188
Description: Pre-Milestone B Activites					
FY 2015 Accomplishments: Transferred from project 676029 (Global ASNT Inc 1)					
FY 2016 Plans: Initiate pre-development and upfront system engineering activities Perform requirements and technology analysis and trade studies Conduct market research and program risk analysis Develop acquisition strategy in preparation for Milestone B					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0303131F / <i>Minimum Essential Emergency Communications Network (MEECN)</i>	Project (Number/Name) 676030 / <i>Global ASNT Inc 2</i>

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Draft system requirements documentation and validate requirements					
<i>FY 2017 Base Plans:</i> Continue pre-development, system engineering & request for proposal activities in preparation for Milestone B Continue to draft system requirements documentation Develop EMD Phase request for proposal (RFP)					
<i>FY 2017 OCO Plans:</i> N/A					
Accomplishments/Planned Programs Subtotals	0.000	4.371	11.188	0.000	11.188

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

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• OPAF: BA03: Line item # 834210: <i>Global ASNT Inc 2</i>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	12.983	13.217	-	-

Remarks

D. Acquisition Strategy

Global ASNT used a full and open competitive approach to award an EMD contract for Increment 1. Global ASNT will continue to use a competitive incremental approach to fulfill the overall requirements for Increments 2 and 3.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0303131F / <i>Minimum Essential Emergency Communications Network (MEECN)</i>	Project (Number/Name) 676030 / <i>Global ASNT Inc 2</i>
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Global ASNT Inc 2 - Pre Milestone B Activities	TBD	Not specified. : TBD	-	0.000		0.000		7.406	Nov 2016	0.000		7.406	Continuing	Continuing	-
Subtotal			-	0.000		0.000		7.406		0.000		7.406	-	-	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Global ASNT Inc 2 - MITRE Lab	Various	MITRE : Bedford, MA	-	0.000		0.537	Feb 2016	0.236	Oct 2016	0.000		0.236	Continuing	Continuing	-
Global ASNT Inc 2 - GFE	Various	Various : TBD	-	0.000		0.420	Jun 2016	0.000		0.000		0.000	Continuing	Continuing	-
Subtotal			-	0.000		0.957		0.236		0.000		0.236	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Global ASNT Inc 2 - Test Planning	Various	Various : TBD	-	0.000		0.155	Jul 2016	0.160	Nov 2016	0.000		0.160	Continuing	Continuing	-
Subtotal			-	0.000		0.155		0.160		0.000		0.160	-	-	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Global ASNT Inc 2 - PMA (Eng/Acq Support, Travel)	Various	Various : TBD	-	0.000		1.959	Jan 2016	2.047	Nov 2016	0.000		2.047	Continuing	Continuing	-
Global ASNT Inc 2 - PMA (MITRE)	SS/CPFF	MITRE : Bedford, MA	-	0.000		1.300	Feb 2016	1.339	Oct 2016	0.000		1.339	Continuing	Continuing	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0303131F / <i>Minimum Essential Emergency Communications Network (MEECN)</i>	Project (Number/Name) 676030 / <i>Global ASNT Inc 2</i>
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Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	0.000		3.259		3.386		0.000		3.386	-	-	-
Project Cost Totals			-	0.000		4.371		11.188		0.000		11.188	-	-	-

Remarks
 \$1.9M FY15 ATR (New Start) approved in September 2015; funding received in October 2015. \$1.9M allocated to early system engineering activities and program stand-up.

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force			Date: February 2016		
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0303131F / <i>Minimum Essential Emergency Communications Network (MEECN)</i>	Project (Number/Name) 676030 / <i>Global ASNT Inc 2</i>			

	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021							
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
Global ASNT Inc 2 Pre-Milestone B Activities																																
Global ASNT Inc 2 - Release Request for Proposal																																
Global ASNT Inc 2 - Milestone B Decision																																
Global ASNT Inc 2 - Contract Award																																
Global ASNT Inc 2 - Engineering and Manufacturing Development																																
Global ASNT Inc 2 - Preliminary Design Review (PDR)																																
Global ASNT Inc 2 - Critical Design Review (CDR)																																
Global ASNT Inc 2 - Test																																
Global ASNT Inc 2 - Milestone C Decision																																
Global ASNT Inc 2 - Production & Deployment																																

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0303131F / <i>Minimum Essential Emergency Communications Network (MEECN)</i>	Project (Number/Name) 676030 / <i>Global ASNT Inc 2</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Global ASNT Inc 2 Pre-Milestone B Activities	1	2016	3	2018
Global ASNT Inc 2 - Release Request for Proposal	4	2017	4	2017
Global ASNT Inc 2 - Milestone B Decision	3	2018	3	2018
Global ASNT Inc 2 - Contract Award	4	2018	4	2018
Global ASNT Inc 2 - Engineering and Manufacturing Development	4	2018	1	2021
Global ASNT Inc 2 - Preliminary Design Review (PDR)	2	2019	2	2019
Global ASNT Inc 2 - Critical Design Review (CDR)	4	2019	4	2019
Global ASNT Inc 2 - Test	4	2019	1	2021
Global ASNT Inc 2 - Milestone C Decision	1	2021	1	2021
Global ASNT Inc 2 - Production & Deployment	1	2021	4	2021

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0303140F / <i>Information Systems Security Program</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	-	64.972	46.303	46.388	0.000	46.388	36.477	33.395	36.401	37.049	Continuing	Continuing
674861: <i>EKMS (Electronic Key Management System)</i>	-	0.592	0.633	0.922	0.000	0.922	0.939	0.000	0.000	0.000	0.000	3.086
675100: <i>Cryptographic Modernization</i>	-	55.018	29.068	38.729	0.000	38.729	33.809	30.689	33.649	34.246	Continuing	Continuing
675231: <i>AF Key Management Infrastructure (AF KMI)</i>	-	9.362	16.602	6.737	0.000	6.737	1.729	2.706	2.752	2.803	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Information Systems Security Program (ISSP) Element provides cradle-to-grave research, development, acquisitions, supply, sustainment, depot maintenance, and demilitarization of the Air Force (AF) cryptographic and key distribution/management systems (known as the Key Management Enterprise (KME)). Additionally, ISSP funds the AF operation of its AF KME, one of two Department of Defense (DoD) Tier 1 key distribution centers. The AF and the DoD require the capability to secure, collect, process, store, and disseminate an uninterrupted flow of information, while denying an adversary the ability to intercept, collect, destroy, interpret, or manipulate our information flows. Secure communication allows the DoD to achieve and maintain decision superiority, the key to successful application of the military instrument of national power. AF Communications Security (COMSEC) equipment protects information such as warfighter positions, mission planning, target strikes, commanders' orders, intelligence, force strength, and force readiness and ensures adversaries cannot interpret, manipulate, or destroy information. When an adversary is capable of interpretation, manipulation, or destruction of the information used by the warfighter, DoD military forces will suffer significant and/or devastating mission degradation that can result in loss of life and resources and/or disclose information that could be used against the United States in a public forum.

The overall focus of the Research, Development, Test, and Evaluation (RDT&E) efforts within this program is to transform electronic key delivery and cryptographic devices to meet the next generation warfighting requirements. These efforts are driven by the National Security Agency's (NSA) first tenet calling for an AF KME that allows for totally "man-out-of-the-loop" electronic crypto key distribution system from the generation of the key in the key processor all the way into the using End Crypto Unit (ECU). This eliminates the current key vulnerability of compromise/interruption by individuals transporting or loading the key. NSA's second tenet requires an inventory of cryptographic devices that are more robust, modular, scalable, capable, net-centric, and durable. This enables more effective and efficient performance including reduced inventory, expanded data rates, simplified upgrades, and ensured global information grid-compatibility.

The FY 2017 funding request was reduced by \$3.5 million to account for the availability of prior year execution balances.

This program is in Budget Activity 7, Operational System Development, as these budget activities include development efforts in the AF KME to upgrade systems currently fielded or have approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0303140F / <i>Information Systems Security Program</i>
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B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	69.727	46.599	50.352	0.000	50.352
Current President's Budget	64.972	46.303	46.388	0.000	46.388
Total Adjustments	-4.755	-0.296	-3.964	0.000	-3.964
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	-0.296			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-2.325	0.000			
• Other Adjustments	-2.430	0.000	-3.964	0.000	-3.964

Change Summary Explanation

Reductions in FY15 funding due to higher Air Force priorities.
 Reductions in FY16 funding due to higher Air Force priorities.
 Reductions in FY17 funding due to higher Air Force priorities.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force										Date: February 2016		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0303140F / <i>Information Systems Security Program</i>				Project (Number/Name) 674861 / <i>EKMS (Electronic Key Management System)</i>			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
674861: <i>EKMS (Electronic Key Management System)</i>	-	0.592	0.633	0.922	0.000	0.922	0.939	0.000	0.000	0.000	0.000	3.086
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Air Force Electronic Key Management System (AFEKMS) consists of multiple developments supporting the Air Force requirements portion of the DoD EKMS Program. The National Security Agency (NSA) acts as the Executive Agent for the DoD EKMS Program. AFEKMS, as part of the AF Key Management Enterprise (KME) and 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, with users across DoD Command, Control, Communications, Computers, and Intelligence (C4I) and all AF weapon systems. AFEKMS supports U.S. DoD Information Assurance. Information Assurance emphasizes confidentiality, access control, multi-level secure databases, trusted computing, and information integrity. DoD EKMS has a three-tier hierarchical structure. This tiered structure provides capability to distribute, manage, and account for COMSEC keying material. Tier 1 installations comprise the key material generation and control capability. Tier 2 installations comprise the local distribution network (COMSEC accounts) and Tier 3 is where keying material is transferred from the EKMS infrastructure to the consumers End Cryptographic Units (ECUs). Additionally, AFEKMS resources provide maintenance/distribution of AF Communications Security (COMSEC) publications for all AF users.

EKMS improves 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 via Public Switched Telephone Network (PSTN) 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 seamlessly transition to the net-centric DoD Key Management Infrastructure (KMI). The AFEKMS Program continues to provide software development to support emerging requirements during the KMI transition period. Activities include studies and analysis to support both current program planning and execution as well as development activities to extend life of the Simple Key Loader to bridge the gap between EKMS and the KMI implementation.

NOTE: AF KME Software development (e.g., Data Management Device - DMD, Common User Application Software - CUAS, and Simple Key Loader - SKL) is rolled up into Tier 2/Tier 3 Development. Software upgrades can be bundled and tracked as a unit, thereby allowing less management overhead and more focus on configuration management and control.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2015	FY 2016	FY 2017
Title: Fill /Load Device Post Production SW Development	0.592	0.633	0.922
Description: AF KME Post Production software development focuses on extending life of EKMS through transition to Key Management Infrastructure (KMI) capabilities. This will be accomplished via the Intermediary Application (iApp) software and Tri-Service development of KOV-21 replacement chip through Communications-Electronics Research, Development and Engineering Center (CERDEC) by U.S. Army. The iApp is designed to include all major Data Management Device (DMD)			

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0303140F / <i>Information Systems Security Program</i>	Project (Number/Name) 674861 / <i>EKMS (Electronic Key Management System)</i>
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B. Accomplishments/Planned Programs (\$ in Millions)

<p>capabilities. The iApp is designed to meet certification and accreditation requirements and iApp user interface is designed for ease of adoption and minimal user training for EKMS DMD, Consolidated Tier 3 Testing Infrastructure (CETTI) User Application Software (UAS), and Simple Key Loader (SKL). The CERDEC effort develops a replacement KOV-21 Card for current Simple Key Loader (SKL) to extend life of SKL until KMI compatible key loader is available.</p> <p>FY 2015 Accomplishments: - Continued Post Production software for extending life of EKMS through transition to DOD-Level Key Management Infrastructure (KMI) capabilities</p> <p>FY 2016 Plans: - Continue Post Production software for extending life of EKMS through transition to DOD-Level Key Management Infrastructure (KMI) capabilities.</p> <p>FY 2017 Plans: - Will continue Post Production software for extending life of EKMS through transition to DOD-Level Key Management Infrastructure (KMI) capabilities.</p>	FY 2015	FY 2016	FY 2017
Accomplishments/Planned Programs Subtotals	0.592	0.633	0.922

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

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u> <u>Base</u>	<u>FY 2017</u> <u>OCO</u>	<u>FY 2017</u> <u>Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• OPAF:BA03: 831010: <i>COMSEC Equipment</i>	2.150	4.950	1.047	0.000	1.047	3.060	0.000	0.000	0.000	Continuing	Continuing

Remarks
Other Program Funding reflects Air Force Electronic Key Management System (AFEKMS) portion of Information Systems Security Program (ISSP) OPAF total.

D. Acquisition Strategy

Implement AF portion of the DoD's Cryptographic Modernization(CM) Initiative through modernization/modification efforts, in varying stages of the acquisition cycle, with focus on minimizing life cycle costs. 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.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0303140F / <i>Information Systems Security Program</i>	Project (Number/Name) 674861 / <i>EKMS (Electronic Key Management System)</i>
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Tier 2/3 software modifications and updates	TBD	Various : TBD	-	0.000		0.000		0.266	Apr 2017	0.000		0.266	Continuing	Continuing	-
Fill/Load Device Post Production Software Development	C/T&M	Mantech Sensor Technologies, Inc. : Belcamp, MD	-	0.000		0.000		0.000		0.000		0.000	Continuing	Continuing	-
Tri-Service CERDEC Chip	TBD	Various : TBD	-	0.464	Apr 2016	0.502	Apr 2017	0.527	Apr 2018	0.000		0.527	0.000	1.493	-
Subtotal			-	0.464		0.502		0.793		0.000		0.793	-	-	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
SKL CETTI UAS Testing Spt DMS	MIPR	SPAWAR : San Diego, CA	-	0.128	May 2015	0.131	May 2016	0.129	May 2017	0.000		0.129	Continuing	Continuing	-
Subtotal			-	0.128		0.131		0.129		0.000		0.129	-	-	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force							Date: February 2016			
Appropriation/Budget Activity 3600 / 7			R-1 Program Element (Number/Name) PE 0303140F / <i>Information Systems Security Program</i>			Project (Number/Name) 674861 / <i>EKMS (Electronic Key Management System)</i>				
	Prior Years	FY 2015	FY 2016		FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	0.592	0.633		0.922	0.000	0.922	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0303140F / <i>Information Systems Security Program</i>	Project (Number/Name) 674861 / <i>EKMS (Electronic Key Management System)</i>

FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

AFEKMS Tier 2/3 SW Modification and Updates

[REDACTED]																											
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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0303140F / <i>Information Systems Security Program</i>	Project (Number/Name) 674861 / <i>EKMS (Electronic Key Management System)</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
AFEKMS Tier 2/3 SW Modification and Updates	1	2015	4	2018

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force										Date: February 2016		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0303140F / <i>Information Systems Security Program</i>				Project (Number/Name) 675100 / <i>Cryptographic Modernization</i>			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
675100: <i>Cryptographic Modernization</i>	-	55.018	29.068	38.729	0.000	38.729	33.809	30.689	33.649	34.246	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The AF Cryptographic Modernization Effort modernizes cryptographic devices protecting critical national security information across cyber domain operations. In September 2000, the Defense Review Board (DRB) tasked National Security Agency (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 also identified and have been replaced or are being fielded. 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 by device and algorithm in Chairman Joint Chiefs of Staff Notice (CJCSN) 6510. The DoD Cryptographic Modernization Program was established to develop a modern cryptographic base that provides this assured security robustness, interoperability, advanced algorithms, releasability, programmability, and compatibility with the future Key Management Infrastructure (KMI-See PE 0303140F, BPAC 67523, AF KMI for a full description). This AF effort supports an integrated effort across the cyber domain to transform to next-generation cryptographic capabilities. It provides U.S. forces and multinational and interagency partners the security needed to protect the flow and exchange of operational decision making information in accordance with national and international policy/standards, the validated operational requirements of the warfighters, and the intelligence communities.

The AF Cryptographic Modernization Effort 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 crypto devices with common solutions that are more robust, modular, scalable, and provide the durability to existing 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 secure, transparent, network-centric capabilities across the cyber domain. Activities also include studies and analysis to support both current program planning/execution and future program planning.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2015	FY 2016	FY 2017
Title: VINSON/ANDVT Cryptographic Modernization (VACM)	6.514	0.015	0.000
Description: VINSON (VHF(Very High Frequency)/UHF(Ultra High Frequency) Wideband Tactical Secure Voice System Cryptographic Equipment)-ANDVT (Advanced Narrowband Digital Voice Terminal) Cryptographic Modernization (VACM) will develop and acquire cryptographic capability to replace the legacy capability on VINSON/ANDVT secure voice communications on aircraft, ships, and ground fixed and mobile platforms (Devices: KY-57/58, KY-99/100, KYV-5 and ARC-234 with Embedded Crypto).			

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016		
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0303140F / <i>Information Systems Security Program</i>	Project (Number/Name) 675100 / <i>Cryptographic Modernization</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2015	FY 2016	FY 2017
<p><i>FY 2015 Accomplishments:</i></p> <ul style="list-style-type: none"> - Completed production of 100 Low Rate Initial Production (LRIP) VINSON (VHF(Very High Frequency)/UHF(Ultra High Frequency) Wideband Tactical Secure Voice System Cryptographic Equipment)-ANDVT (Advanced Narrowband Digital Voice Terminal) Cryptographic Modernization (VACM) test units - Entered Force Development Evaluation to test and evaluate the VACM devices - ARC 234 completed the modification development using VACM technology <p><i>FY 2016 Plans:</i> Complete Force Development Evaluation</p> <p><i>FY 2017 Plans:</i> N/A</p>				
<p><i>Title:</i> Space Telemetry Tracking & Commanding (TT&C) Aerospace Vehicle Equipment Increment 1 (AVE Inc1)</p> <p><i>Description:</i> Space Telemetry Tracking & Commanding (TT&C) Aerospace Vehicle Equipment Increment 1 (AVE Inc 1) develops and delivers space qualified cryptographic products to satellite platforms for securing the TT&C link</p> <p><i>FY 2015 Accomplishments:</i> - Continued development activities on Space TT&C AVE Inc 1 CAROUSEL Cryptographic Engine (CCE) contract</p> <p><i>FY 2016 Plans:</i> - Complete development activities on Space TT&C AVE Inc 1 CCE contract</p> <p><i>FY 2017 Plans:</i> N/A</p>		5.146	4.085	0.000
<p><i>Title:</i> Technology Development (TD)</p> <p><i>Description:</i> Technical Development (TD) conducts concept development and early systems engineering activities to analyze evolving threats and Communications Security (COMSEC) capability gaps across AF and DoD mission areas. Develops, plans and executes foundational technology demonstration efforts to inform COMSEC requirements, build capability roadmaps and support cost estimates prior to Materiel Development Decision (MDD). Mitigates risk for thousands of AF and DoD users affected by algorithm security issues and ensures required security upgrades can be integrated into the AF and DoD enterprise. Works closely with NSA and other services to develop standards that increase security of communication and information products and facilitate efficient crypto and COMSEC enterprise management. Includes but is not limited to: Secure Micro-digital Data Link</p>		19.808	1.000	1.116

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0303140F / <i>Information Systems Security Program</i>	Project (Number/Name) 675100 / <i>Cryptographic Modernization</i>

B. Accomplishments/Planned Programs (\$ in Millions)

(SMDDL), Classified Data at Rest (CDAR), Common Encryption Management (CEMENT), Distributed Common Ground System (DCGS) Crypto, Transmission Security (TRANSEC) modernization, Enhanced Firefly (EFF) replacement development, Trusted Sensors, Integrated Data Denial (IDD) Crypto, Crypto Enterprise Tracking (CET), and Advanced Crypto Capabilities (ACC).

FY 2015 Accomplishments:

- Completed SMDDL certification and demonstrated miniaturized cryptographic solution for Size, Weight, and Power (SWaP) constrained platforms
- Continued efforts for adoption of baseline Common Crypto Management Information Base (MIB) to provide framework for future common management of cryptographic devices amongst Army, Navy and Air Force
- Analyzed CDAR capability gaps across multiple AF weapon systems and initiated effort to develop a JCIDS requirement with follow-on acquisition
- Continued Air Force Distributed Common Ground System Communications Modernization (AF DCGS CM) analysis to determine cryptographic devices that allow AF DCGS to continue operating during and after a Communications Modernization from ATM to the Next Generation Deterministic Protocol (NGDP); formulated DCGS development and procurement strategies resulting from these analyses with follow-on DCGS sustainment plan
- Initiated analysis for the replacement or upgrade of 150,000 Air Force devices in support of the Advanced Cryptographic Capabilities (ACC) program

FY 2016 Plans:

- Continue solutions refinement analysis to complete Concept Characterization and Technology Descriptions (CCTDs) for high priority CDAR use cases and support MDD
- Complete development of common crypto management software for integration with Army CHIMERA effort to demonstrate the remote crypto management under CEMENT for disparate families of Internet Protocol (IP) encryptors
- Continue analysis for the replacement or upgrade of 150,000 Air Force devices in support of the Advanced Cryptographic Capabilities (ACC) program
- Continue analysis of TRANSEC capability gaps and initiate concept characterization study for requirements refinement

FY 2015	FY 2016	FY 2017

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016		
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0303140F / <i>Information Systems Security Program</i>	Project (Number/Name) 675100 / <i>Cryptographic Modernization</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2015	FY 2016	FY 2017
<ul style="list-style-type: none"> •Form Initiative Integrated Product Team (IIPT) to assess/clarify IDD program requirements; prepare initiative for MDD <i>FY 2017 Plans:</i> •Will continue solutions analysis to complete Concept Characterization and Technology Descriptions (CCTDs) for CDAR use cases to support MDD. •Will continue analysis of TRANSEC capability gaps and CCTDs for requirements refinement. •Refine analysis for the replacement or upgrade of 150,000 Air Force devices in support of the Advanced Cryptographic Capabilities (ACC) program. •Will award IDD contract to develop a solution for hardware obsolescence issues. 				
<p>Title: Mini Crypto (MC)</p> <p>Description: Mini Crypto (MC) plans to develop common miniaturized cryptographic solution(s) for use in protecting Secret and Below information on Size, Weight, and Power (SWaP) constrained platforms.</p> <p>FY 2015 Accomplishments:</p> <ul style="list-style-type: none"> •Achieved MS B and completed Source Selection for the Engineering and Manufacturing Development (EMD) contract <p>FY 2016 Plans:</p> <ul style="list-style-type: none"> •Award EMD contract. Contractor will host an Integrated Baseline Review (IBR) meeting, System Requirements Review (SRR), System Functional Review (SFR) as well as a Preliminary Design Review (PDR). Prototypes will be delivered for initial test activities in support of integrated testing <p>FY 2017 Plans:</p> <ul style="list-style-type: none"> - Will continue to execute the EMD contract - Production Representative Engineering Development Models (PREDMs) will be delivered to the Government to support Government Integrated Development/Operational Testing and Operational Assessment - PREDMs will be used during this period for Security Verification Testing (SVT) as the program attempts to obtain NSA Type 1 Certification 		2.045	4.217	7.370

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016		
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0303140F / <i>Information Systems Security Program</i>	Project (Number/Name) 675100 / <i>Cryptographic Modernization</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2015	FY 2016	FY 2017
- Mini Crypto will seek Milestone C approval from the PEO				
<p>Title: Space Modular Common Crypto (SMCC)</p> <p>Description: Space Modular Common Crypto (SMCC) provides Information Assurance (IA) services for new satellite architectures via a family of common crypto solutions that integrate Tracking, Telemetry, & Commanding (TT&C), Mission Data (MD), and/or Transmission Security (TRANSEC) key stream functions for the Air Force and Intelligence Community space systems.</p> <p>FY 2015 Accomplishments:</p> <ul style="list-style-type: none"> - Continued Technology Maturation/Risk Reduction (TMRR) activities <p>FY 2016 Plans:</p> <ul style="list-style-type: none"> - Complete TMRR activities; achieved MS B in Nov 15; will award SMCC Cube/Small Sat development contract <p>FY 2017 Plans:</p> <ul style="list-style-type: none"> - Will continue SMCC Cube/Small Sat development contract activities. Will award SMCC Medium/Large Sat development contract 		15.711	10.596	27.119
<p>Title: Algorithm Transition Compliance and Support</p> <p>Description: Cryptologic Systems Division-supported AF Space Command (AF Cyber Core Function Lead) in Algorithm Transition, Compliance and Support provides Information Assurance (IA) Support that performs transition and governance efforts to be able to effectively analyze 30 classified algorithms, thousands of associated COMSEC keying material short titles, and hundreds of equipment types. This effort also tracks and reports algorithm/device integration across the AF. Based on analysis, determines and monitors mitigation strategies; develops and plans technology demonstration efforts to ensure new algorithms can be integrated into the AF enterprise. Assesses current state of AF crypto across the enterprise. Develops and maintains a classified CM database system that tracks status of AF crypto device types that is accessible by the CM community via SIPRNET. Efforts support NC3, ISR, all AF platforms, and most ground networks.</p> <p>FY 2015 Accomplishments:</p> <ul style="list-style-type: none"> •Continued program to develop a method and/or process to accurately transition, track, and manage crypto assets and COMSEC across the AF •Cryptologic Systems Division-supported AF Space Command (AF Cyber Core Function Lead) supported algorithm transition and governance efforts to effectively track, analyze, and report on AF use of 30 classified algorithms in over 270,000 devices across the AF enterprise comprised of over 300 equipment types/families and requiring thousands of associated COMSEC keying material short titles 		2.026	2.848	2.013

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0303140F / <i>Information Systems Security Program</i>	Project (Number/Name) 675100 / <i>Cryptographic Modernization</i>

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2015	FY 2016	FY 2017
<ul style="list-style-type: none"> • Provided Crypto-Mod analysis database to AF community to assist in annual assessments during long term effort to develop enterprise capabilities based assessment (CBA) to identify management capability gaps • Conducted annual assessment of the state of the AF cryptographic enterprise • Conducted initial evaluation of impacts of the emerging NSA Commercial Solutions for Classified (CSfC) cryptographic development model and its impacts on AF acquisition and sustainment • Evaluated AF posture as it relates to NSA's Advanced Cryptographic Capabilities program by assessing the impacts to the warfighter <p>FY 2016 Plans:</p> <ul style="list-style-type: none"> • Cryptologic Systems Division-supported AF Space Command (AF Cyber Core Function Lead) continues to support algorithm transition and governance efforts to effectively track, analyze, and report on AF use of 30 classified algorithms in over 270,000 devices across the AF enterprise comprised of over 300 equipment types/families and requiring thousands of associated COMSEC keying material short titles • Continue analysis and development of a method and/or process to accurately transition, track, and manage crypto assets and COMSEC across the AF • Provide Crypto-Mod analysis database to AF community to assist in annual assessments during long term effort to develop enterprise capabilities based assessment (CBA) to identify management capability gaps • Conduct annual assessment of the state of the AF cryptographic enterprise • Continue to evaluate NSA recommendations for Advanced Cryptographic Capabilities suite of algorithms and identify related tasks which affect the AF <p>FY 2017 Plans:</p> <ul style="list-style-type: none"> • Will continue to support algorithm transition and governance efforts to effectively track, analyze, and report on AF use of 30 classified algorithms in over 270,000 devices across the AF enterprise comprised of over 300 equipment types/families and requiring thousands of associated COMSEC keying material short titles • Will continue analysis and development of a method and/or process to accurately transition, track, and manage crypto assets and COMSEC across the AF 			

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0303140F / <i>Information Systems Security Program</i>	Project (Number/Name) 675100 / <i>Cryptographic Modernization</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
<ul style="list-style-type: none"> •Will provide Crypto-Mod analysis database to AF community to assist in annual assessments during long term effort to develop enterprise capabilities based assessment (CBA) to identify management capability gaps •Will conduct annual assessment of the state of the AF cryptographic enterprise •Will continue to evaluate NSA recommendations for Advanced Cryptographic Capabilities suite of algorithms and identify related tasks which affect the AF 			
<p>Title: Missile Electronic Encryption Device (MEED) Modification</p> <p>Description: The MEED Modification will modify the legacy Missile Entry Control System (MECS) devices used to securely authenticate personnel attempting access to this Nation's ground-based Intercontinental Ballistic Missile (ICBM) facilities. This effort will bring the MEED equipment into compliance with current NSA information assurance (IA) security design guidance.</p> <p>FY 2015 Accomplishments: Continued market research and hosted MEED Modification Industry Day. Developed and released Request For Proposals, performed Source Selection activities and garnered approval of Development Decision (Milestone B equivalent brief)</p> <p>FY 2016 Plans: Complete Source Selection, award MEED Modification development contract and prepare for production decision in FY17</p> <p>FY 2017 Plans: Will continue development contract, complete Operational Testing and release Production RFP for Production contract</p>	3.768	6.307	1.111
Accomplishments/Planned Programs Subtotals	55.018	29.068	38.729

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u> <u>Base</u>	<u>FY 2017</u> <u>OCO</u>	<u>FY 2017</u> <u>Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• OPAF: BA03: 831010: <i>COMSEC Equipment</i>	37.567	30.538	21.775	0.000	21.775	17.780	21.957	16.550	24.034	Continuing	Continuing

Remarks
Remarks: Other Program Funding reflects Crypto Modernization (CM) portion of Information Systems Security Program (ISSP) OPAF total.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0303140F / <i>Information Systems Security Program</i>	Project (Number/Name) 675100 / <i>Cryptographic Modernization</i>

D. Acquisition Strategy

Implement AF portion of the DoD's Cryptographic Modernization(CM) Initiative through modernization/modification efforts, in varying stages of the acquisition cycle, with focus on minimizing life cycle costs. The CM portfolio of component acquisition projects is 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.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0303140F / <i>Information Systems Security Program</i>	Project (Number/Name) 675100 / <i>Cryptographic Modernization</i>
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
VINSON/ANDVT Cryptographic Modernization (VACM)	C/CPIF	Raytheon Company : Ft Wayne, IN	-	4.830	Jun 2015	0.000		0.000		0.000		0.000	0.000	4.830	47.863
VINSON/ANDVT/ Cryptographic Modernization (ARC-234)	MIPR	Defense Microelectronic Activity : Sacramento, CA	-	0.720	Oct 2015	0.000		0.000		0.000		0.000	0.000	0.720	32.737
Space Telemetry, Tracking & Commanding (TT&C) Aerospace Vehicle Equipment (AVE Inc 1)	C/CPFF	General Dynamics C4 Systems : Scottsdale, AZ	-	4.027	Oct 2014	2.857	May 2016	0.000		0.000		0.000	Continuing	Continuing	-
Tech Development	Various	MULTIPLE : MULTIPLE	-	17.211	Jan 2015	1.000	Jan 2016	1.016	Jan 2017	0.000		1.016	Continuing	Continuing	-
Mini Crypto	C/CPIF	VIASAT, INC : Carlsbad, CA	-	0.685	Oct 2015	2.478	Oct 2015	4.820	Dec 2016	0.000		4.820	0.000	7.983	-
Space Modular Common Crypto (SMCC)	C/TBD	MULTIPLE : MULTIPLE	-	10.329	Feb 2015	5.022	Apr 2016	19.010	Mar 2017	0.000		19.010	Continuing	Continuing	-
Missile Electronic Encryption Device (MEED) Modernization	C/FFP	SAIC : Tampa, FL	-	2.600	Nov 2015	4.241	Feb 2016	1.111	Aug 2017	0.000		1.111	Continuing	Continuing	-
Subtotal			-	40.402		15.598		25.957		0.000		25.957	-	-	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Mini Crypto	Reqn	OSI Vision LLC : San Antonio, TX	-	0.150	Sep 2015	0.000		0.000		0.000		0.000	Continuing	Continuing	-
Subtotal			-	0.150		0.000		0.000		0.000		0.000	-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0303140F / <i>Information Systems Security Program</i>	Project (Number/Name) 675100 / <i>Cryptographic Modernization</i>
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Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
VINSON/ANDVT Crypto Mod (VACM)	MIPR	MULTIPLE : MULTIPLE	-	0.104	Sep 2015	0.015	Dec 2015	0.000		0.000		0.000	0.000	0.119	5.001
Space Telemetry, Tracking & Commanding (TT&C) Aerospace Vehicle Equipment Increment 1 (AVE Inc 1)	Various	MULTIPLE : MULTIPLE	-	0.529	Oct 2014	0.455	Nov 2015	0.000		0.000		0.000	0.000	0.984	-
Mini Crypto	Various	MULTIPLE : MULTIPLE	-	0.297	Jan 2015	0.399	Mar 2016	0.814	Mar 2017	0.000		0.814	Continuing	Continuing	-
Space Modular Common Crypto (SMCC)	Various	MULTIPLE : MULTIPLE	-	1.206	Dec 2014	1.217	Dec 2015	2.596	Dec 2016	0.000		2.596	Continuing	Continuing	-
Missile Electronic Encryption Device (MEED) Modernization	MIPR	MULTIPLE : MULTIPLE	-	0.155	Jan 2016	0.554	Jul 2016	0.234	Feb 2017	0.000		0.234	Continuing	Continuing	-
Subtotal			-	2.291		2.640		3.644		0.000		3.644	-	-	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Management Administration (PMA)	Various	Various : Various	-	12.175	Dec 2014	10.830	Dec 2015	9.128	Dec 2015	0.000		9.128	Continuing	Continuing	-
Subtotal			-	12.175		10.830		9.128		0.000		9.128	-	-	-

	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	55.018	29.068	38.729	0.000	38.729	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0303140F / <i>Information Systems Security Program</i>	Project (Number/Name) 675100 / <i>Cryptographic Modernization</i>

	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
AN/ARC-234 Cryptographic Modernization	██████████																											
VINSON/ANDVT Cryptographic Modernization (VACM)	██████████																											
Space Telemetry Tracking and Commanding (TT&C) Aerospace Vehicle Equipment Increment 1 (AVE Inc 1)	██████████				██████████																							
Mini Crypto (MC)	██████████				██████████				██████████																			
Space Modular Common Crypto (SMCC)	██████████				██████████				██████████				██████████				██████████											
Missile Electronic Encryption Device (MEED) Modernization	██████████				██████████				██████████																			
Algorithm Transition, Compliance and Information Assurance (IA) Support	██████████				██████████				██████████				██████████				██████████				██████████							
Technology Development (TD)	██████████				██████████				██████████				██████████				██████████				██████████							
Classified Data at Rest (CDAR)					██████████				██████████				██████████				██████████				██████████							
Trusted Sensor (TS)					██████████				██████████																			
Integrated Data Denial (IDD)					██████████				██████████				██████████				██████████				██████████							
Advanced Crypto Capabilities (ACC)					██████████				██████████				██████████				██████████				██████████							

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0303140F / <i>Information Systems Security Program</i>	Project (Number/Name) 675100 / <i>Cryptographic Modernization</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
AN/ARC-234 Cryptographic Modernization	1	2015	4	2015
VINSON/ANDVT Cryptographic Modernization (VACM)	1	2015	4	2015
Space Telemetry Tracking and Commanding (TT&C) Aerospace Vehicle Equipment Increment 1 (AVE Inc 1)	1	2015	3	2016
Mini Crypto (MC)	1	2015	4	2017
Space Modular Common Crypto (SMCC)	1	2015	1	2020
Missile Electronic Encryption Device (MEED) Modernization	1	2015	4	2017
Algorithm Transition, Compliance and Information Assurance (IA) Support	1	2015	4	2021
Technology Development (TD)	1	2015	4	2021
Classified Data at Rest (CDAR)	1	2016	2	2020
Trusted Sensor (TS)	1	2016	2	2017
Integrated Data Denial (IDD)	1	2016	2	2019
Advanced Crypto Capabilities (ACC)	1	2016	4	2021

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force										Date: February 2016		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0303140F / <i>Information Systems Security Program</i>				Project (Number/Name) 675231 / <i>AF Key Management Infrastructure (AF KMI)</i>			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
675231: <i>AF Key Management Infrastructure (AF KMI)</i>	-	9.362	16.602	6.737	0.000	6.737	1.729	2.706	2.752	2.803	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

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 Agent 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 and other communications security (COMSEC) materials for all DoD Command, Control, Communications, Computers, and Intelligence (C4I) systems and for the Services' weapon systems. KMI represents a broad-scale replacement of the current Electronic Key Management System (EKMS). 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 DoD KMI will greatly improve protection of national, security-related information by substantially enhancing confidentiality, integrity, and non-repudiation characteristics over the legacy EKMS. 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 eventually take the man "out-of-the-loop" in the distribution of crypto key materials.

The AF KMI Program in concert with the DoD KMI Program is transitioning the Air Force from the legacy EKMS to modern DoD KMI and building the AF KMI Last Mile architecture. This Research and Development effort includes system engineering, development and testing to successfully implement the AF KMI Last Mile architecture as part of the AF Key Management Enterprise (KME). The AF KMI Last Mile program is a holistic solution integrating the legacy and new and evolving cryptographic programs, materials, products, sources and consumers. The AF KMI Last Mile capabilities include as part of the AF KME distribution, management, and load of cryptographic materials from the KMI (COMSEC account) to the cryptographic load devices. It builds the linkage interfaces that will allow KMI systems to communicate and integrates other related developments to meet operational needs. AF KMI Last Mile is currently in the Development Phase. Activities also include studies and analysis to support both current program planning and execution and future program planning.

In parallel with AF KMI, DoD and the Services are addressing the need for a new generation of future KMI-aware End Crypto Unit(ECU)that will be capable of direct interaction with the DoD KMI Enterprise, under the Joint Crypto Modernization Initiative (PE0303140F, BPAC 675100, Cryptographic Modernization, supports 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) and red (unencrypted) keying material from a KMI client to a new generation ECU or current legacy ECU will need to be handled in the early years by one of two data transfer devices. Initial early systems engineering must also be addressed to accommodate future connectivity between the DoD KMI and future KMI Aware/ Enabled ECUs. This enabling form factor functionally defined as a common ECU KMI aware/enabled key load module. This is targeted to be a standardized module to be provided to ECU developers and, as such, it must precede any future ECU developments.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0303140F / <i>Information Systems Security Program</i>	Project (Number/Name) 675231 / <i>AF Key Management Infrastructure (AF KMI)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
<p>Title: Air Force KMI Last Mile Space & Naval Warfare Systems Command (SPAWAR) Support(Tier 3)</p> <p>Description: Support included architectural planning, systems engineering, testing and studies and analyses for migration to the Key Management Infrastructure (KMI) (includes acquisition planning, systems integration, engineering support and System Program Office (SPO) support). Transitioned existing key management capabilities to AF KMI Last Mile Tier 3.</p> <p>FY 2015 Accomplishments: - Continued to provide annual resources (no funding) to SPAWAR to plan and execute specific Unmanned Aircraft Systems (UAS) testing for all Air Force ECUs</p> <p>FY 2016 Plans: - Continue to provide annual resources to SPAWAR to plan and execute specific UAS testing for all Air Force ECUs</p> <p>FY 2017 Plans: - Will continue to provide annual resources to SPAWAR to plan and execute specific UAS testing for all Air Force ECUs</p>	0.000	0.100	0.100
<p>Title: Air Force KMI Last Mile (Tier 3)</p> <p>Description: Air Force KMI Last Mile Tier 3 early system engineering, risk reduction and engineering development to include: concept development for distribution, load and management elements of last mile; studies and analyses for technology possibilities and prototyping efforts for the last mile; development of a certified KMI-aware, Product Delivery Enclave - enabled key load device.</p> <p>FY 2015 Accomplishments: - Achieved MS B and awarded/executed the Portable Key Loader (PKL) EMD contract</p> <p>FY 2016 Plans: - Continue to execute the PKL EMD contract and begin preparations to award/enter the PKL production phase</p> <p>FY 2017 Plans: - Will continue to execute the EMD contract and award/enter the PKL production phase</p>	9.362	16.502	6.637
Accomplishments/Planned Programs Subtotals	9.362	16.602	6.737

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• OPAF: BA03: 831010: <i>COMSEC Equipment</i>	3.890	4.676	14.207	0.000	14.207	11.062	11.109	10.927	12.591	Continuing	Continuing

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0303140F / <i>Information Systems Security Program</i>	Project (Number/Name) 675231 / <i>AF Key Management Infrastructure (AF KMI)</i>

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

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u> <u>Base</u>	<u>FY 2017</u> <u>OCO</u>	<u>FY 2017</u> <u>Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
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Remarks

Remarks: Other Program Funding reflects AF Key Management Infrastructure (KMI) portion of Information Systems Security Program (ISSP) OPAF total.

D. Acquisition Strategy

Implement AF portion of the DoD's Cryptographic Modernization (CM) Initiative through modernization/modification efforts, in varying stages of the acquisition cycle, with focus on minimizing life cycle costs. 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.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force												Date: February 2016			
Appropriation/Budget Activity 3600 / 7				R-1 Program Element (Number/Name) PE 0303140F / Information Systems Security Program				Project (Number/Name) 675231 / AF Key Management Infrastructure (AF KMI)							
Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering	SS/T&M	MITRE : San Antonio, TX	-	0.354	Oct 2014	0.737	Oct 2015	0.076	Oct 2016	0.000		0.076	Continuing	Continuing	-
AF KMI Last Mile	C/CPIF	L3 Comm: Camden NJ : Various	-	6.010	Sep 2015	12.942	Mar 2016	5.116	Mar 2017	0.000		5.116	Continuing	Continuing	13.364
Subtotal			-	6.364		13.679		5.192		0.000		5.192	-	-	-
Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Engineering & Technical Documentation	SS/T&M	MITRE : San Antonio, TX	-	1.037	Oct 2014	1.217	Oct 2015	0.700	Oct 2016	0.000		0.700	Continuing	Continuing	-
Engineering & Technical Acquisition Support Service	C/CPFF	Jacobs Engineering : San Antonio, TX	-	1.004	Jan 2015	0.759	Jan 2016	0.210	Jan 2017	0.000		0.210	Continuing	Continuing	-
AF KMI Last Mile (Tier 3)	MIPR	U.S. Navy SPAWAR : San Diego, CA	-	0.100	Jan 2015	0.100	Mar 2016	0.100	May 2017	0.000		0.100	Continuing	Continuing	-
Subtotal			-	2.141		2.076		1.010		0.000		1.010	-	-	-
Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
KMI Last Mile	PO	46 TS : Eglin AFB, FL	-	0.246	Nov 2014	0.246	Nov 2015	0.105	Mar 2017	0.000		0.105	Continuing	Continuing	-
NSA Test Support	MIPR	NSA : TBD	-	0.000		0.000		0.190	Feb 2017	0.000		0.190	Continuing	Continuing	-
KMI Last Mile TES	MIPR	605 TES : Eglin AFB, FL	-	0.000		0.000		0.100	Mar 2017	0.000		0.100	Continuing	Continuing	-
Subtotal			-	0.246		0.246		0.395		0.000		0.395	-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0303140F / Information Systems Security Program	Project (Number/Name) 675231 / AF Key Management Infrastructure (AF KMI)
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Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Management Administration (PMA)	Various	Various : Various	-	0.611	Dec 2014	0.601	Dec 2015	0.140	Dec 2016	0.000		0.140	Continuing	Continuing	-
Subtotal			-	0.611		0.601		0.140		0.000		0.140	-	-	-

Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
-	9.362	16.602	6.737	0.000	6.737	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0303140F / <i>Information Systems Security Program</i>	Project (Number/Name) 675231 / <i>AF Key Management Infrastructure (AF KMI)</i>

FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

AF KMI Tier 3 Last Mile	[REDACTED]																											
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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0303140F / <i>Information Systems Security Program</i>	Project (Number/Name) 675231 / <i>AF Key Management Infrastructure (AF KMI)</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
AF KMI Tier 3 Last Mile	1	2015	3	2017

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0303141F / <i>Global Combat Support System</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	-	0.692	0.000	0.052	0.000	0.052	0.105	0.000	0.000	0.000	Continuing	Continuing
675046: <i>Systems Engineering & Integration</i>	-	0.692	0.000	0.052	0.000	0.052	0.105	0.000	0.000	0.000	Continuing	Continuing

A. Mission Description and Budget Item Justification

Global Combat Support System-Air Force (GCSS-AF) provides 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 infrastructure and Air Force enterprise common services are a critical basis for the target Common Computing Environment (CCE) effort which Air Force Guidance Memorandum has directed for all new and modernizing IT applications. This effort is the Air Force evolution to DoD Joint Information Environment (JIE) leveraging Core Data Centers (CDCs) and DISA-brokered cloud capabilities in compliance with the Air Force Information Technology (AF IT) baselines. This framework is a set of baseline-driven platform and infrastructure services in both physical and virtual hosting environments. It is comprised of development tools, an initial set of enterprise services, and governance processes critical to JIE management.

This system is implemented worldwide to support 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 information flow speed.

Activities also include Enterprise Protection Risk Management (EPRM), an automated risk management framework to assess and mitigate cyber and other threats to Air Force information technology and mission assets. This capability eliminates stove pipes and provides commanders with better situational awareness of vulnerabilities. Additionally, this capability promotes efficiency and sound resource allocation by enabling commanders to make better decisions when selecting risk reduction counter measures.

This program is in Budget Activity 7, Operational System Development, because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0303141F / <i>Global Combat Support System</i>
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B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	0.692	0.000	0.159	0.000	0.159
Current President's Budget	0.692	0.000	0.052	0.000	0.052
Total Adjustments	0.000	0.000	-0.107	0.000	-0.107
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	-0.107	0.000	-0.107

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force										Date: February 2016		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0303141F / <i>Global Combat Support System</i>				Project (Number/Name) 675046 / <i>Systems Engineering & Integration</i>			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
675046: <i>Systems Engineering & Integration</i>	-	0.692	0.000	0.052	0.000	0.052	0.105	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Enterprise Protection Risk Management (EPRM) is an automated risk management framework to assess and mitigate cyber and other threats to Air Force information technology and mission assets. This capability eliminates stove pipes and provides commanders with better situational awareness of vulnerabilities. Additionally, this capability promotes efficiency and sound resource allocation by enabling commanders to make better decisions when selecting risk reduction counter measures.

This program is in Budget Activity 7, Operational System Development, because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2015	FY 2016	FY 2017
Title: Develop Enterprise Protection Risk Management (EPRM)	0.692	0.000	0.052
Description: Enterprise Protection Risk Management (EPRM) is an automated and standardized risk management application designed to support the Defense Security Enterprise in mitigating security risks to Air Force assets. EPRM addresses cyber, physical, information, industrial security, as well as program protection planning. EPRM prioritizes Courses of Action (COAs) for relative value to protect multiple assets from multiple threat tactics, techniques, and procedures. EPRM received certification and accreditation and hosting was established at DISA.			
FY 2015 Accomplishments: - Rolled-out, tested, and provided software enhancements to MAJCOMs, completed Joint Staff Integrated Vulnerability Assessment benchmarks, and incorporated Insider Threat mitigation countermeasures to improve risk analysis.			
FY 2016 Plans: N/A			
FY 2017 Plans: Continue with integration efforts, support mission assurance systems and testing of the Extract Transform and Load protocol.			
Accomplishments/Planned Programs Subtotals	0.692	0.000	0.052

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0303141F / <i>Global Combat Support System</i>	Project (Number/Name) 675046 / <i>Systems Engineering & Integration</i>

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

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u> <u>Base</u>	<u>FY 2017</u> <u>OCO</u>	<u>FY 2017</u> <u>Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• N/A: N/A	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	-

Remarks

D. Acquisition Strategy

EPRM RDT&E funding will be placed on cost-plus fixed fee contract to support continued development and enhancement of COTS software.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force												Date: February 2016				
Appropriation/Budget Activity				R-1 Program Element (Number/Name)					Project (Number/Name)							
3600 / 7				PE 0303141F / Global Combat Support System					675046 / Systems Engineering & Integration							
Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Develop Enterprise Protection Risk Management (EPRM)	C/CPFF	Alion Science and Technology : Alexandria, VA	-	0.692	Jan 2014	0.000		0.052	Oct 2016	0.000		0.052	Continuing	Continuing	TBD	
Subtotal			-	0.692		0.000		0.052		0.000		0.052	-	-	-	
Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Subtotal			-	-		-		-		-		-	-	-	-	
Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Subtotal			-	-		-		-		-		-	-	-	-	
Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Subtotal			-	-		-		-		-		-	-	-	-	
Project Cost Totals			-	0.692		0.000		0.052		0.000		0.052	-	-	-	
Remarks																
None.																

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0303141F / <i>Global Combat Support System</i>	Project (Number/Name) 675046 / <i>Systems Engineering & Integration</i>

	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
EPRM Production	██████████																											
Joint Staff Integrated Vulnerability Assessment	██████████																											
EPRM Testing	██████████																											
Application Integration Efforts									██████████																			
Extract Transform and Load Protocol Testing									██████████																			

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0303141F / <i>Global Combat Support System</i>	Project (Number/Name) 675046 / <i>Systems Engineering & Integration</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
EPRM Production	1	2015	4	2015
Joint Staff Integrated Vulnerability Assessment	1	2015	2	2015
EPRM Testing	1	2015	4	2015
Application Integration Efforts	1	2017	1	2018
Extract Transform and Load Protocol Testing	1	2017	1	2018

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0303142F / <i>Global Force Management - Data Initiative</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	-	0.000	2.470	2.099	0.000	2.099	2.141	2.185	2.226	2.265	Continuing	Continuing
676027: <i>Global Force Mgt Initiative</i>	-	0.000	2.470	2.099	0.000	2.099	2.141	2.185	2.226	2.265	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Global Force Management Data Initiative (GFM DI) is a Joint Staff and the Office of the Secretary of Defense (OSD) initiative to standardize force structure data, making it visible, accessible, and understandable across the Department of Defense (DoD). This initiative is accomplished through each service's Organizational Server. The Air Force Organizational Server (AFOS) consumes data from various Air Force Authoritative Data Sources (ADSs), validates it, formats it in a consistent force structure data standard, and publishes it for consumption by programs of record that use force structure data. The AFOS is the ADS for Air Force Authorized Force Structure and provides critical unit, billet, crew platform, vehicle, and command relationship data within the Air Force to the Joint Staff (J8) for war and contingency planning, by providing visibility of the entire force structure as a function of time: past, present and future.

The AFOS produces consistent force structure data in the Global Force Management Information Exchange Model format that is well defined, centrally managed, and interoperable as a standardized representation of the organization's hierarchy in all other programs of record that use force structure data. The end goal of the GFM-DI AFOS is to integrate the four force management processes (Assignment, Manpower & Personnel, Readiness, and Allocation), and ensure the data is available to meet the needs of all users, systems and functions.

This program is in Budget Activity 7, Operational System Development, because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	0.000	2.470	2.120	0.000	2.120
Current President's Budget	0.000	2.470	2.099	0.000	2.099
Total Adjustments	0.000	0.000	-0.021	0.000	-0.021
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	-0.021	0.000	-0.021

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0303142F / <i>Global Force Management - Data Initiative</i>
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C. Accomplishments/Planned Programs (\$ in Millions)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Global Force Management - Data Initiative Description: The GFM-DI is a combination of net-centric services designed to provide access to information on the operational availability of USAF forces and equipment. GFM-DI is part of a Joint GFM, (each service has a GFM-DI), directed by OSD and the JCS. FY 2015 Accomplishments: N/A FY 2016 Plans: - MDD - Complete activities leading to the Material Development Decision (MDD) Milestone - Develop RFP - Complete activities leading to the release of the Development Request For Proposals (DEV RFP) - MS B Decision - Complete activities leading to the completion of the Milestone B (MS-B) decision - Contract Award - Complete activities leading to the award of the development contract - Joint Information Environment (JIE) Integration and Migration – AFOS NIPR/SIPR to meet Federal Data Center Initiative (FDCCI), Common Computing Environment (CCE) and Integrated Baseline Environment (IBE) mandates – Increment I FY 2017 Base Plans: - JIE Integration and Migration – Rehost AFOS NIPR/SIPR to meet Federal Data Center Initiative (FDCCI), Common Computing Environment (CCE) and Integrated Baseline (IB) compliant data center - COCOM Manual Updates - Capability to manually add/change Combatant Commander Assignments and COCOM assignment dates – Increment II - Functional/Data Validation – Develop imbedded system functionality/data validation against Joint Staff J8 data standards – Increment II FY 2017 OCO Plans: None	0.000	2.470	2.099	0.000	2.099
Accomplishments/Planned Programs Subtotals	0.000	2.470	2.099	0.000	2.099

D. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• N/A: N/A	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	-

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0303142F / <i>Global Force Management - Data Initiative</i>
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D. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u> <u>Base</u>	<u>FY 2017</u> <u>OCO</u>	<u>FY 2017</u> <u>Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
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Remarks

E. Acquisition Strategy

The program will utilize an evolutionary acquisition strategy with incremental development efforts resulting in migration to a Joint Information Environment (JIE)-compliant platform, replacement of system Commercial-Off-the-Shelf (COTS) components with newer, more capable elements, and additional software releases to implement additional requirements.

The anticipated contract structure will be Firm-Fixed Price contract.

The Air Force Organizational Server (AFOS) PMO will utilize a mix of Service Level Agreements (SLA) and Interface Requirement Agreements with AFOS stakeholders and support agencies as part of its management strategy. SLAs will be developed with the Lead Developmental Test Organization and the Capabilities Integration Environment at Maxwell AFB-Gunter Annex. The AFOS PMO also maintains Memorandum of Agreements (MOAs) with several AFOS input and output systems, including Manpower Programming & Execution Systems, Air Force Directory Services, Air Force Equipment Management System, and Force Structure Data Management.

F. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force												Date: February 2016			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
3600 / 7				PE 0303142F / Global Force Management - Data Initiative				676027 / Global Force Mgt Initiative							
Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
GFM-DI AFOS / Development Contract	TBD	TBD : TBD	-	0.000		1.890	Jul 2016	1.802	Mar 2017	0.000		1.802	Continuing	Continuing	TBD
Subtotal			-	0.000		1.890		1.802		0.000		1.802	-	-	-
Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
CIE Support - NIPR/SIPR Dev Environment	C/FFP	AFLCMC/HNIZ : Montgomery, AL	-	0.000		0.060	Sep 2016	0.030	Sep 2017	0.000		0.030	Continuing	Continuing	TBD
Enclave System Admin Services	TBD	DISA : Montgomery, AL	-	0.000		0.130	Jun 2016	0.130	May 2017	0.000		0.130	Continuing	Continuing	TBD
Subtotal			-	0.000		0.190		0.160		0.000		0.160	-	-	-
Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Lead Developmental Test Organization Independent Test & Evaluation	C/FFP	AFLCMC/HNIZ : MONTGOMERY, AL	-	0.000		0.030	Mar 2016	0.120	Mar 2017	0.000		0.120	Continuing	Continuing	TBD
Architecture Support	TBD	DISA : MONTGOMERY, AL	-	0.000		0.100	Mar 2016	0.017	Mar 2017	0.000		0.017	Continuing	Continuing	TBD
Subtotal			-	0.000		0.130		0.137		0.000		0.137	-	-	-
Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Aquisition SME Support	C/FFP	AFLCMC/HIB : MONTGOMERY, AL	-	0.000		0.260	Jan 2016	0.000		0.000		0.000	Continuing	Continuing	TBD

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force											Date: February 2016				
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0303142F / Global Force Management - Data Initiative						Project (Number/Name) 676027 / Global Force Mgt Initiative				
Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			-	0.000		0.260		0.000		0.000		0.000	-	-	-
			Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract				
Project Cost Totals			-	0.000	2.470	2.099	0.000	2.099	-	-	-				
<u>Remarks</u>															

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0303142F / <i>Global Force Management - Data Initiative</i>	Project (Number/Name) 676027 / <i>Global Force Mgt Initiative</i>

	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
- MDD																												
- Develop RFP																												
- MS B Decision (Jul 2016)																												
- Contract Award																												
- JIE Integration and Migration																												
- COCOM Manual Update																												
- Functional/Data Validation																												
- Readiness/Authorization Linkage																												
- Joint Staff J8 Validation																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0303142F / <i>Global Force Management - Data Initiative</i>	Project (Number/Name) 676027 / <i>Global Force Mgt Initiative</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
- MDD	2	2016	2	2016
- Develop RFP	3	2016	3	2016
- MS B Decision (Jul 2016)	4	2016	4	2016
- Contract Award	4	2016	4	2016
- JIE Integration and Migration	4	2016	1	2018
- COCOM Manual Update	4	2017	2	2018
- Functional/Data Validation	4	2017	4	2018
- Readiness/Authorization Linkage	4	2018	4	2020
- Joint Staff J8 Validation	4	2020	4	2021

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0303601F / MILSATCOM Terminals
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COST (\$ in Millions)	Prior Years ⁽⁺⁾	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	2,161.419	57.930	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2,219.349
672490: <i>Family of Advanced Beyond Line-of-Sight Terminals (FAB-T)</i>	125.924	57.930	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	183.854

Program MDAP/MAIS Code: 199

⁽⁺⁾ The sum of all Prior Years is \$2035.495 million less than the represented total due to several projects ending

Note

In FY2016, PE 0303601F, MILSATCOM Terminals, Project 672490, Family of Advanced Beyond Line-of-Sight Terminals (FAB-T) was transferred to PE 0303001F, FAB-T, Project 672490 FAB-T for improved visibility of ACAT I programs.

FAB-T was funded FY13 and prior in PE 0303601F, Project Number 672487 and Project Number 672489. In FY14, it was transferred to Project Number 672490 in the same PE.

A. Mission Description and Budget Item Justification

The Military Satellite Communications (MILSATCOM) terminals program develops and fields equipment enabling users to communicate via legacy and future systems to include 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 efforts:

1) 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 existing user platforms and future concept terminals to provide more resilient and/or higher data rate satellite communications to warfighters.

2) The Family of Advanced Beyond Line-of-Sight Terminals (FAB-T) program replaces legacy Milstar Command Post Terminals (CPT) and will provide Extremely High Frequency (EHF), protected high data rate communication for nuclear and conventional forces to include Presidential and National Voice Conferencing (PNVC). FAB-T will provide this new, highly secure, state-of-the-art capability for DoD platforms to include strategic platforms and airborne/ground command posts via Milstar, AEHF, and Enhanced Polar System (EPS) satellites. FAB-T terminals will also support the critical command and control (C2) of the Milstar, AEHF, and EPS satellite constellations. In FY15, the Air Force continued development of the FAB-T terminal, Milestone C decision was approved on September 1, 2015.

3) The Presidential and National Voice Conferencing (PNVC) capability is a critical element of the Nuclear Command, Control, and Communications (NC3) System. There are several components being developed that must be synchronized to expeditiously field this capability. In May 2015, the Air Force was designated as the end-

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0303601F / <i>MILSATCOM Terminals</i>
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to-end PNVC Integrator. The Defense Information Systems Agency will transfer \$15M RDT&E to the Air Force for PNVC Integration. The Air Force will request an ATR for FY15 and/or FY16 funds for remaining FY16 requirements. This continuing effort was previously programmed and budgeted in DISA's PE 0303126K/Long-Haul Communications - DCS, PC01: Presidential and National Voice Conferencing Equipment and is not a New Start.

4) The Joint Terminal Engineering Office (JTEO) provides tri-service coordination of terminal development, acquisition and fielding activities.

This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	54.678	0.000	0.000	0.000	0.000
Current President's Budget	57.930	0.000	0.000	0.000	0.000
Total Adjustments	3.252	0.000	0.000	0.000	0.000
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	5.000	0.000			
• SBIR/STTR Transfer	-1.748	0.000			
• Other Adjustments	0.000	0.000	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force										Date: February 2016		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0303601F / MILSATCOM Terminals				Project (Number/Name) 672490 / Family of Advanced Beyond Line-of-Sight Terminals (FAB-T)			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
672490: Family of Advanced Beyond Line-of-Sight Terminals (FAB-T)	125.924	57.930	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	183.854
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Note

In FY2016, PE 0303601F, MILSATCOM Terminals, Project 672490, Family of Advanced Beyond Line-of-Sight Terminals (FAB-T) was transferred to PE 0303001F, FAB-T, Project 672490 FAB-T for improved visibility of ACAT I programs.

FAB-T was funded FY13 and prior in PE 0303601F, Project Number 672487 and Project Number 672489. In FY14, it was transferred to Project Number 672490 in the same PE.

A. Mission Description and Budget Item Justification

The Family of Advanced Beyond Line-of-Sight Terminals (FAB-T) program replaces legacy Milstar terminals and will provide Extremely High Frequency (EHF), protected high data rate communication for nuclear and conventional forces to include Presidential and National Voice Conferencing (PNVC). FAB-T will provide this new, highly secure, state-of-the-art capability for DoD platforms to include strategic platforms and airborne/ground command posts via Milstar, AEHF, and Enhanced Polar System (EPS) satellites. FAB-T terminals will also support the critical command and control (C2) of the Milstar, AEHF and EPS satellite constellations. In FY16, the Air Force continued development of the FAB-T terminal, performing systems engineering, architectures, continuation of developmental test efforts for preparation of Initial Operational Test & Evaluation (IOT&E) & other activities to meet current & future emerging SATCOM requirements.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2015	FY 2016	FY 2017
Title: FAB-T Development	57.930	-	-
Description: The FAB-T program will provide EHF voice and data MILSATCOM for nuclear and conventional forces as well as airborne and ground command posts with connectivity to Milstar, AEHF, and EPS satellites.			
FY 2015 Accomplishments: Raytheon continued development activities, and completed Functional Configuration Audit (FCA) and Engineering Development Model (EDM) deliveries to support government Milestone C decision which was awarded September 1, 2015.			
Accomplishments/Planned Programs Subtotals	57.930	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0303601F / MILSATCOM Terminals	Project (Number/Name) 672490 / Family of Advanced Beyond Line-of-Sight Terminals (FAB-T)

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

Line Item	FY 2015	FY 2016	FY 2017	FY 2017	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	Cost To	
			Base	OCO	Total					Complete	Total Cost
• APAF: BA05, OTHACF: <i>Other Aircraft</i>	32.106	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
• OPAF: BA03, 836700: <i>MILSATCOM Space</i>	60.230	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
• OPAF: BA05, 86190A: <i>Spares and Repair Parts</i>	12.112	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
• APAF: BA05: <i>FBLOST</i>	21.784	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
• APAF: BA06: <i>Aircraft Spares and Repair Parts</i>	5.540	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
• RDT&E: BA07: <i>PE 0303001F</i>	0.000	3.907	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	-

Remarks

Other program funding listed in FY14-15 is only for the FAB-T program. In FY16, all of the listed Other Program Funding in PE 030601F will transfer to PE 0303001F.

D. Acquisition Strategy

FAB-T Acquisition Strategy: In September 2002 the program office awarded Boeing the System Development and Demonstration (SDD) Cost Plus Award Fee (CPAF) contract; in April 2012 the contract was converted to a Firm Fixed Price (FFP). In 2012 the government introduced competition into the acquisition strategy to reduce risk in delivering this capability as well as to drive down production costs. In September 2012 the program office awarded a System Development and Demonstration (SDD) contract to Raytheon, Firm Fixed Price (FFP). To ensure best value to the government, the Air Force awarded production contracts in September 2013 to both contractors (Boeing and Raytheon). The production contracts began with production planning for both contractors. In June 2014, the Air Force down-selected to Raytheon for development and production of FAB-T Command Post Terminals. The first Production contract options to produce CPT terminals were exercised September 14, 2015 after a successful Milestone C decision was approved September 1, 2015.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0303601F / MILSATCOM Terminals	Project (Number/Name) 672490 / Family of Advanced Beyond Line-of-Sight Terminals (FAB-T)
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
FAB-T Development (Prior Down-Select)	Various	Boeing : Huntington Beach, CA	26.132	0.000		0.000		0.000		0.000		0.000	0.000	26.132	-
FAB-T Development	Various	Raytheon : Marlborough, MA	82.948	27.321	Oct 2014	0.000		0.000		0.000		0.000	0.000	110.269	-
FAB-T Technical Mission Analysis	Various	Not specified. : TBD	7.672	22.577		0.000		0.000		0.000		0.000	0.000	30.249	-
FAB-T GFE DMS	MIPR	Not specified. : TBD	1.744	0.950		0.000		0.000		0.000		0.000	0.000	2.694	-
Subtotal			118.496	50.848		0.000		0.000		0.000		0.000	0.000	169.344	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
FAB-T Government Test and LDTO Support	Various	Various : Various	1.902	1.904	Oct 2014	0.000		0.000		0.000		0.000	Continuing	Continuing	-
Subtotal			1.902	1.904		0.000		0.000		0.000		0.000	-	-	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
FAB-T FFRDC	MIPR	Aerospace : Los Angeles, CA	2.192	1.143	Oct 2014	0.000		0.000		0.000		0.000	Continuing	Continuing	-
FAB-T A&AS	C/Various	Various : TBD	2.555	2.949		0.000		0.000		0.000		0.000	Continuing	Continuing	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force											Date: February 2016			
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0303601F / MILSATCOM Terminals					Project (Number/Name) 672490 / Family of Advanced Beyond Line-of-Sight Terminals (FAB-T)				

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
FAB-T Other Support	Various	Various : TBD	0.779	1.086		0.000		0.000		0.000		0.000	Continuing	Continuing	-
Subtotal			5.526	5.178		0.000		0.000		0.000		0.000	-	-	-
Project Cost Totals			125.924	57.930		0.000		0.000		0.000		0.000	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0303601F / MILSATCOM Terminals	Project (Number/Name) 672490 / Family of Advanced Beyond Line-of-Sight Terminals (FAB-T)

	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
FAB-T Raytheon Development Contract	[REDACTED]																											
Milestone C Decision	[REDACTED]																											
Award FAB-T Production Contract Option	[REDACTED]																											

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0303601F / MILSATCOM Terminals	Project (Number/Name) 672490 / Family of Advanced Beyond Line-of-Sight Terminals (FAB-T)

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
FAB-T Raytheon Development Contract	1	2015	4	2015
Milestone C Decision	4	2015	4	2015
Award FAB-T Production Contract Option	4	2015	4	2015

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0304260F / <i>Airborne SIGINT Enterprise</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	-	72.910	112.775	90.762	0.000	90.762	128.599	122.833	119.221	120.636	Continuing	Continuing
675180: <i>RC-135 (Airborne SIGINT Development - RC-135 Rivet Joint)</i>	-	15.007	41.846	39.756	0.000	39.756	59.535	50.938	40.984	42.509	Continuing	Continuing
675181: <i>High Altitude SIGINT Development - High Altitude</i>	-	5.930	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	5.930
675183: <i>Common Development (Airborne SIGINT Development - Common Development)</i>	-	37.711	60.811	38.779	0.000	38.779	54.430	55.841	56.480	55.982	Continuing	Continuing
675185: <i>Non-Traditional SIGINT (NTS)</i>	-	12.040	7.188	8.875	0.000	8.875	10.011	11.106	14.335	14.591	Continuing	Continuing
675186: <i>Special Programs (Airborne SIGINT Development - Special Platforms)</i>	-	2.222	2.930	3.352	0.000	3.352	4.623	4.948	7.422	7.554	Continuing	Continuing

A. Mission Description and Budget Item Justification

(U) This Program provides signals intelligence (SIGINT) development efforts for all USAF airborne platforms. The funds in this Program 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 and Air Force standards (to include NATO standardization agreements) to ensure joint, allied, and coalition interoperability. Modernization efforts include sensors for the platforms and where appropriate, their interfaces with the Air Force Distributed Common Ground System (AF DCGS). This approach supports a synergistic development effort providing a true Air Force-wide capability.

(U) This enterprise will use the Air Force SIGINT Architecture (AFSA) for planning and decision-making and, in turn, employ open architecture standards whenever possible 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. Funds in any project may be used to fund initiatives in other projects within this Program at the discretion of the SCWG. 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 in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0304260F / Airborne SIGINT Enterprise
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B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	74.072	112.775	89.930	0.000	89.930
Current President's Budget	72.910	112.775	90.762	0.000	90.762
Total Adjustments	-1.162	0.000	0.832	0.000	0.832
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	-1.162	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	0.832	0.000	0.832

Change Summary Explanation

- In FY 2015, PE 34260F, (Airborne SIGINT Enterprise), Project 675183, (Common Development) \$1.162M of efforts were transferred to higher Department priorities.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force										Date: February 2016		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0304260F / Airborne SIGINT Enterprise				Project (Number/Name) 675180 / RC-135 (Airborne SIGINT Development - RC-135 Rivet Joint)			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
675180: RC-135 (Airborne SIGINT Development - RC-135 Rivet Joint)	-	15.007	41.846	39.756	0.000	39.756	59.535	50.938	40.984	42.509	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

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 field needed capabilities, it also incurs a need for continuous identification of suitable replacements for components affected by Diminishing Manufacturing Sources and integration efforts consistent with the COTS technology cycle. These efforts provide required engineering for preliminary assessments of technical feasibility, operability, or military utility as well as specific engineering implementations integrated into the various baseline modifications. These funds will be split between the RC-135V/W RIVET JOINT, the RC-135U COMBAT SENT, and the RC-135S COBRA BALL programs. Funding reflects the SIGINT Capabilities Working Group (SCWG) priorities and the accomplishment of other Airborne SIGINT Enterprise (ASE) initiatives.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2015	FY 2016	FY 2017
Title: SIGINT Development	15.007	41.846	39.756
Description: Non-Recurring Engineering (NRE) for the RC-135 SIGINT Systems. See Classified Budget Exhibits (PE 0305207F)			
FY 2015 Accomplishments: - Continued SIGINT development efforts for the RC-135 fleet to include new signal sets and upgrades to current capabilities.			
FY 2016 Plans: - Continues SIGINT development efforts for the RC-135 fleet to include new signal sets and upgrades to current capabilities.			
FY 2017 Plans: - Will continue SIGINT development efforts for the RC-135 fleet to include new signal sets and upgrades to current capabilities.			
Accomplishments/Planned Programs Subtotals	15.007	41.846	39.756

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

Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• APAF: BA05: Line Item # DARP01: RC-135	163.346	165.715	211.438	0.000	211.438	201.237	184.779	188.189	191.658	Continuing	Continuing

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0304260F / Airborne SIGINT Enterprise	Project (Number/Name) 675180 / RC-135 (Airborne SIGINT Development - RC-135 Rivet Joint)

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

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u> <u>Base</u>	<u>FY 2017</u> <u>OCO</u>	<u>FY 2017</u> <u>Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
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Remarks

(U) The 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 (ASE). Not all Procurement funds in PE 0305207F are for ASE SIGINT projects.

D. Acquisition Strategy

(U) Aircraft, aircraft sensor systems, and associated ground support system modifications planned include the procurement, fielding and logistical support for future RC-135V/W RIVET JOINT, RC-135U COMBAT SENT and RC-135S COBRA BALL baseline configurations. Development and integration is managed by the Big Safari Systems Group. They employ evolutionary acquisition approaches to field incremental capability improvements.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0304260F / Airborne SIGINT Enterprise	Project (Number/Name) 675180 / RC-135 (Airborne SIGINT Development - RC-135 Rivet Joint)
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
SIGINT Sensor Development and Integration	SS/ Various	L3COM : Greenville, TX	-	15.007	Jan 2015	41.846	Jan 2016	39.756	Jan 2017	0.000		39.756	Continuing	Continuing	-
Subtotal			-	15.007		41.846		39.756		0.000		39.756	-	-	-

Remarks
Above contract method/type will be CPFF and FFP

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

			Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	15.007	41.846	39.756	0.000	39.756	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0304260F / Airborne SIGINT Enterprise	Project (Number/Name) 675180 / RC-135 (Airborne SIGINT Development - RC-135 Rivet Joint)

	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

Development of RIVET JOINT mission sensors (see 0305207F for classified details)	[REDACTED]																											
Development of COMBAT SENT mission sensors (see 0305207F for classified details)	[REDACTED]																											
Development of COBRA BALL mission sensors (see 0305207F for classified details)	[REDACTED]																											

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0304260F / Airborne SIGINT Enterprise	Project (Number/Name) 675180 / RC-135 (Airborne SIGINT Development - RC-135 Rivet Joint)

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Development of RIVET JOINT mission sensors (see 0305207F for classified details)	1	2015	4	2021
Development of COMBAT SENT mission sensors (see 0305207F for classified details)	1	2015	4	2021
Development of COBRA BALL mission sensors (see 0305207F for classified details)	1	2015	4	2021

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force										Date: February 2016		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0304260F / Airborne SIGINT Enterprise				Project (Number/Name) 675181 / High Altitude SIGINT Development - High Altitude			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
675181: High Altitude SIGINT Development - High Altitude	-	5.930	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	5.930
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

(U) In FY 2016, PE 0304260F, Airborne SIGINT Enterprise, Project 675181, High Altitude SIGINT Development - High Altitude, efforts are transferred to PE 0304260F, Airborne SIGINT Enterprise, Project 675183, Common Development (Airborne SIGINT Development - Common Development) in order to simplify contracts as there will be only one High Altitude platform project going forward.

A. Mission Description and Budget Item Justification

(U) This project covers the costs of SIGINT integration for high altitude intelligence, surveillance, and reconnaissance (ISR) platforms.

(U) This project supports sensor integration and test, flight test, design studies, engineering analysis, non-recurring engineering and other efforts associated with the insertion of new capabilities integrated into the Airborne Signals Intelligence Payload (ASIP) or other SIGINT sensors and their associated air and ground components for the High Altitude SIGINT platforms. The project also identifies suitable replacements for components affected by Diminishing Manufacturing Sources (DMS). This project provides the warfighter with a near-term, increased combat capability. Enhancements are implemented as soon as technology and risk achieve satisfactory levels. Capability improvements will be inserted into the sensors through individual development efforts that exploit signals of interest identified as service priorities by the Air Force SIGINT Capabilities Working Group (SCWG). Funding includes completion of developmental logistics tasks associated with the design, development, and integration of ASIP.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2015	FY 2016	FY 2017
Title: High Altitude SIGINT	5.930	0.000	-
Description: Integration and test of SIGINT sensors into high altitude platforms including the Airborne Signals Intelligence Payload (ASIP) Incr 1 sensor, using an open system architecture.			
FY 2015 Accomplishments: - Continued logistics efforts and development of new signals capabilities and enhancements of SIGINT sensors as necessary.			
FY 2016 Plans: No activity planned.			
Accomplishments/Planned Programs Subtotals	5.930	0.000	-

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0304260F / Airborne SIGINT Enterprise	Project (Number/Name) 675181 / High Altitude SIGINT Development - High Altitude

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

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u> <u>Base</u>	<u>FY 2017</u> <u>OCO</u>	<u>FY 2017</u> <u>Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• APAF: BA05 Line Item # HAWK00: RQ-4 Mods	21.354	50.022	32.045	0.000	32.045	55.305	81.078	40.029	155.662	Continuing	Continuing

Remarks

(U) Not all funds are associated with SIGINT.

D. Acquisition Strategy

(U) SIGINT capabilities will be integrated into high altitude platforms using an evolutionary approach.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0304260F / Airborne SIGINT Enterprise	Project (Number/Name) 675181 / High Altitude SIGINT Development - High Altitude
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
SIGINT Sensors Development	SS/ Various	Northrop Grumman : San Jose, CA	-	5.930	Jun 2015	0.000		0.000		0.000		0.000	0.000	5.930	-
Subtotal			-	5.930		0.000		0.000		0.000		0.000	0.000	5.930	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

			Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	5.930	0.000	0.000	0.000	0.000	0.000	5.930	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0304260F / Airborne SIGINT Enterprise	Project (Number/Name) 675181 / High Altitude SIGINT Development - High Altitude

FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

New signals integration	[REDACTED]																											
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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0304260F / Airborne SIGINT Enterprise	Project (Number/Name) 675181 / High Altitude SIGINT Development - High Altitude

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
New signals integration	1	2015	4	2015

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force										Date: February 2016		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0304260F / Airborne SIGINT Enterprise				Project (Number/Name) 675183 / Common Development (Airborne SIGINT Development - Common Development)			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
675183: Common Development (Airborne SIGINT Development - Common Development)	-	37.711	60.811	38.779	0.000	38.779	54.430	55.841	56.480	55.982	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

(U) In FY 2016, PE 0304260F, Airborne SIGINT Enterprise, Project 675181, High Altitude SIGINT Development - High Altitude efforts were transferred to PE 0304260F, Airborne SIGINT Enterprise, Project 675183, Common Development (Airborne SIGINT Development - Common Development) in order to simplify contracts as there will be only one High Altitude project going forward.

A. Mission Description and Budget Item Justification

(U) This project supports design studies, engineering analysis, non-recurring engineering, program management administration and other efforts associated with the insertion of new capabilities integrated into ASIP and other sensors and their associated air and ground components that will be used on/by more than one platform. The common development SIGINT project also supports development of new sensors capabilities, normalization of quick reaction capabilities, and identifies suitable replacements for components affected by diminishing manufacturing sources. New capabilities are developed by separate projects. This project also supports the development of projects common to the Airborne SIGINT Enterprise (ASE) Program Element (PE) overall to include, but not limited to: the Air Force SIGINT Architecture (AFSA) maintenance, modeling and simulation efforts, and NATO SIGINT efforts.

(U) Development supports Airborne Signals Intelligence Payload (ASIP) high altitude system upgrades. The ASIP sensor is designed to be a common SIGINT system that will allow for for maximum coverage of the electromagnetic spectrum through the use of an integrated high and low band system.

(U) Capability improvements will be inserted into the ASIP sensor through individual development efforts that exploit signals of interest identified as service priorities by the Air Force SIGINT Capabilities Working Group (SCWG). This project provides the warfighter near term increased combat capability. Enhancements are implemented as soon as technology and risk achieve satisfactory levels. Compatability improvements will be inserted into the ASIP through individual development efforts that exploit signals of interest identified as Service priorities by the USAF SCWG. Sensors will be integrated and tested on the various platforms as funding permits.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2015	FY 2016	FY 2017
Title: SIGINT Development	37.711	60.811	38.779
Description: Develop and test a common SIGINT system for multiple SIGINT platforms including ASIP incremental upgrades using an open system architecture to the maximum extent possible.			
FY 2015 Accomplishments:			

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0304260F / Airborne SIGINT Enterprise	Project (Number/Name) 675183 / Common Development (Airborne SIGINT Development - Common Development)

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
- Continued new signals capabilities and enhancements for the ASIP Family of Systems (FoS) - Continued integration activities and incorporate upgrades as appropriate - Details are classified.			
FY 2016 Plans: - Continues new signals capabilities and enhancements for the ASIP FoS - Continues integration activities and incorporate upgrades as appropriate. Details are classified.			
FY 2017 Plans: - Will continue new signals capabilities and enhancements for the ASIP FoS. - Will continue integration activities and incorporate upgrades as appropriate. Details are classified.			
Accomplishments/Planned Programs Subtotals	37.711	60.811	38.779

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u> <u>Base</u>	<u>FY 2017</u> <u>OCO</u>	<u>FY 2017</u> <u>Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• APAF: BA05 Line Item # HAWK00: RQ-4 Mods	21.354	50.022	32.045	0.000	32.045	55.305	81.078	40.029	155.662	Continuing	Continuing

Remarks
(U) Not all funds are associated with SIGINT.

D. Acquisition Strategy
(U) Signals Intelligence capabilities will be developed and integrated onto various platforms using an incremental acquisition approach. In response to requirements as validated by the SIGINT Capabilities Working Group, an incremental acquisition strategy plan will be executed, contracting with appropriate vendor(s) to deliver capability while encouraging competition where possible.

E. Performance Metrics
Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force											Date: February 2016				
Appropriation/Budget Activity 3600 / 7				R-1 Program Element (Number/Name) PE 0304260F / Airborne SIGINT Enterprise				Project (Number/Name) 675183 / Common Development (Airborne SIGINT Development - Common Development)							

Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
ASIP Upgrades Development	SS/CPPIF	Northrop Grumman : San Jose, CA	-	12.928	Dec 2014	0.864	Oct 2016	0.000		0.000		0.000	0.000	13.792	-
ASIP Global Hawk Increment 1	SS/CPFF	Northrop Grumman : San Jose, CA	-	4.920	Jun 2015	20.612	Nov 2015	5.277	Nov 2016	0.000		5.277	Continuing	Continuing	-
ASIP Increment 2 - Build A - Pre EMD	SS/CPPIF	Northrop Grumman : San Jose, CA	-	3.397	Jul 2015	0.000		0.000		0.000		0.000	0.000	3.397	-
ASIP Increment 2 - Build A	SS/TBD	Northrop Grumman : San Jose, CA	-	5.427	Feb 2016	29.743	Feb 2016	22.764	Nov 2016	0.000		22.764	Continuing	Continuing	-
ASIP Increment 2 - Build B - Pre EMD	Various	Various : TBD	-	0.000		3.000	Jul 2016	0.000		0.000		0.000	Continuing	Continuing	-
Various SIGINT Efforts	Various	Various : TBD	-	3.493	Jan 2015	3.700	Nov 2015	4.000	Nov 2016	0.000		4.000	Continuing	Continuing	-
Subtotal			-	30.165		57.919		32.041		0.000		32.041	-	-	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
(U) Various Integration Efforts, & Flight Test (U-2)	Various	Various : TBD	-	5.357	Jul 2015	0.500	Mar 2016	0.000		0.000		0.000	0.000	5.857	-
Various Integration Efforts, & Flight Test (GH)	Various	Various : TBD	-	0.026	Mar 2015	0.129	Jan 2016	4.724	Jan 2017	0.000		4.724	Continuing	Continuing	-
Subtotal			-	5.383		0.629		4.724		0.000		4.724	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Test and Evaluation Support	Various	Various : TBD	-	0.172	Jul 2015	0.096	Nov 2016	0.000		0.000		0.000	Continuing	Continuing	-
Subtotal			-	0.172		0.096		0.000		0.000		0.000	-	-	-

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0304260F / Airborne SIGINT Enterprise	Project (Number/Name) 675183 / Common Development (Airborne SIGINT Development - Common Development)

	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
ASIP Upgrades Increment 1 - U-2 Field Release 3.2	████████████████																											
ASIP Upgrades Increment 1 - Global Hawk					████████████████████																							
ASIP Upgrades Increment 2 - Build A - Pre EMD	████████████████																											
ASIP Upgrades Increment 2 - Build A					████████████████████																							
ASIP Upgrades Increment 2 - Build B - Pre EMD									██████																			
ASIP Upgrades Increment 2 - Build B													████████████████████															

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0304260F / Airborne SIGINT Enterprise	Project (Number/Name) 675183 / Common Development (Airborne SIGINT Development - Common Development)

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
ASIP Upgrades Increment 1 - U-2 Field Release 3.2	1	2015	3	2016
ASIP Upgrades Increment 1 - Global Hawk	3	2015	4	2017
ASIP Upgrades Increment 2 - Build A - Pre EMD	1	2015	4	2016
ASIP Upgrades Increment 2 - Build A	2	2016	3	2018
ASIP Upgrades Increment 2 - Build B - Pre EMD	4	2016	1	2017
ASIP Upgrades Increment 2 - Build B	3	2018	4	2021

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force										Date: February 2016		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0304260F / Airborne SIGINT Enterprise				Project (Number/Name) 675185 / Non-Traditional SIGINT (NTS)			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
675185: Non-Traditional SIGINT (NTS)	-	12.040	7.188	8.875	0.000	8.875	10.011	11.106	14.335	14.591	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

(U) Project 675185, Non-Traditional SIGINT (NTS) changed from COMPASS BRIGHT. Non-Traditional SIGINT (NTS) includes both COMPASS BRIGHT and Operational Reconnaissance Projects.

A. Mission Description and Budget Item Justification

(U) COMPASS BRIGHT develops, demonstrates, and rapidly transitions advanced Air Force specific Signals Intelligence (SIGINT) capabilities against emerging and future target signals of interest. This program pursues SIGINT technologies for program transition, to include Communications Intelligence (COMINT), Electronic Intelligence (ELINT), Audio, Analytics, Special Signals of Interest, and Radio Frequency (RF) Measurement and Signature Intelligence (MASINT). The COMPASS BRIGHT program objective is to develop technologies for application in SIGINT and MASINT systems or subsystems. Acquisition and production of these developed technologies will occur within the appropriate platform programs. COMPASS BRIGHT projects are selected through a data call process, whereby the USAF evaluates proposals from the laboratories and industry partners, to select those projects that are most promising. This program includes total government and contractor costs for these projects.

(U) Operational Reconnaissance (Ops Recce) is part of the ELINT initiative to improve overall USAF ISR capability through development and use of sensor data from non-ISR platforms and innovative use of sensors. This program pursues Ops Recce capabilities for transition through development, testing, demonstration and implementation efforts across all platforms. The Ops Recce program objective is to provide increased battlespace awareness through the use of sensors/platforms to achieve effects beyond what those sensor/platforms were originally designed.

(U) The program office authority extends to accomplishment of out-of-cycle NTS efforts. These tasks may be filtered through the SCWG outside the normal vetting process to expedite acquisition of high-end capabilities for the warfighter.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2015	FY 2016	FY 2017
Title: SIGINT Tech Development	12.040	7.188	8.875
Description: Develops projects in the Signals Intelligence and Radio Frequency Measurement and Signature Intelligence areas for transition to the RC-135 fleet, other ISR platforms and Operational Reconnaissance (Ops Recce).			
FY 2015 Accomplishments:			

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0304260F / Airborne SIGINT Enterprise	Project (Number/Name) 675185 / Non-Traditional SIGINT (NTS)

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
- Continued/completed various SIGINT projects to include enhanced ELINT exploitation, COMINT, Audio exploitation, Operational Reconnaissance (Ops Recce), Signals of interest prosecution, and Non-Traditional ISR (NTISR).			
FY 2016 Plans: - Initiate, continue, and/or complete various SIGINT projects to include enhanced ELINT exploitation, COMINT, Audio exploitation, Operational Reconnaissance (Ops Recce), Signals of interest prosecution, and NTISR.			
FY 2017 Plans: - Will initiate, continue, and complete various SIGINT projects to include enhanced ELINT exploitation, COMINT, Audio exploitation, Operational Reconnaissance (Ops Recce), Signals of interest prosecution, and NTISR.			
Accomplishments/Planned Programs Subtotals	12.040	7.188	8.875

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u> <u>Base</u>	<u>FY 2017</u> <u>OCO</u>	<u>FY 2017</u> <u>Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• APAF: BA05: Line Item #DARP01: RC-135	163.346	165.715	211.438	0.000	211.438	201.237	184.779	188.189	191.658	Continuing	Continuing
• APAF: BA05: Line Item #HAWK00: RQ-4 Mods	21.354	50.022	32.045	0.000	32.045	55.305	81.078	40.029	155.662	Continuing	Continuing

Remarks
(U) Not all RC-135 and RQ-4 funds are associated with SIGINT.

D. Acquisition Strategy
(U) AFLCMC/WI will execute COMPASS BRIGHT and NTS efforts through technology development and demonstration contracts which leverage existing laboratory relationships and other existing contractual vehicles, with future development projects emphasizing full and open competition.

E. Performance Metrics
Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0304260F / Airborne SIGINT Enterprise	Project (Number/Name) 675185 / Non-Traditional SIGINT (NTS)
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Non Traditional SIGINT	Various	Multiple : Various, V	-	11.189	Jan 2015	6.118	Jan 2016	7.630	Jan 2017	0.000		7.630	Continuing	Continuing	-
Subtotal			-	11.189		6.118		7.630		0.000		7.630	-	-	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
PMA	Various	Various : Dayton, OH	-	0.851	Oct 2014	1.070	Oct 2015	1.245	Oct 2016	0.000		1.245	Continuing	Continuing	-
Subtotal			-	0.851		1.070		1.245		0.000		1.245	-	-	-

			Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	12.040	7.188	8.875	0.000	8.875	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0304260F / Airborne SIGINT Enterprise	Project (Number/Name) 675185 / Non-Traditional SIGINT (NTS)
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FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

SIGINT Technologies	
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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0304260F / Airborne SIGINT Enterprise	Project (Number/Name) 675185 / Non-Traditional SIGINT (NTS)

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
SIGINT Technologies	1	2015	4	2021

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force										Date: February 2016		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0304260F / Airborne SIGINT Enterprise				Project (Number/Name) 675186 / Special Programs (Airborne SIGINT Development - Special Platforms)			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
675186: Special Programs (Airborne SIGINT Development - Special Platforms)	-	2.222	2.930	3.352	0.000	3.352	4.623	4.948	7.422	7.554	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

(U) This project supports special Signals Intelligence (SIGINT) studies as well as the development and integration of advanced SIGINT capabilities for special programs including, but not limited to: Quick Reaction Capability (QRC) sensors, the Processing, Exploitation, and Dissemination (PED) associated with these systems, and other efforts approved by the USAF SIGINT Capabilities Working Group (SCWG). Development efforts will include, but are not limited to: new signal sets, antenna improvements, sensitivity upgrades, and data distribution upgrades. This project provides the warfighter with near term combat capabilities with increased capability improvements accomplished as technologies and risks achieve satisfactory levels. Sensors will be integrated and tested on various platforms including the MQ-1B/ MQ-9A Remotely Piloted Aircraft (RPA) as funding permits.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2015	FY 2016	FY 2017
Title: SIGINT Development	2.222	2.930	3.352
Description: Develop, update, and test SIGINT capabilities for QRC and normalized special programs SIGINT projects.			
FY 2015 Accomplishments: - Modernized systems already integrated on various aircraft including the MQ-1B/9B RPA			
FY 2016 Plans: - Continues to modernize SIGINT systems on the MQ-1B/9A RPA.			
FY 2017 Plans: - Will continue to modernize SIGINT systems on the MQ-1B/9A RPA.			
Accomplishments/Planned Programs Subtotals	2.222	2.930	3.352

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

Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• APAF: BA05: Line Item #PRDTB2: MQ-9	155.445	184.051	141.929	0.000	141.929	202.861	236.691	229.439	240.439	Continuing	Continuing

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0304260F / Airborne SIGINT Enterprise	Project (Number/Name) 675186 / Special Programs (Airborne SIGINT Development - Special Platforms)

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

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u> <u>Base</u>	<u>FY 2017</u> <u>OCO</u>	<u>FY 2017</u> <u>Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
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Remarks

(U) Not all MQ-9 funds are associated with this Project.

D. Acquisition Strategy

(U) SIGINT capabilities will be integrated to various classified platforms using an evolutionary acquisition approach. Capabilities and prototypes will be developed by Other Government Agencies (OGA) and transitioned to select vendors as production needs develop.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0304260F / Airborne SIGINT Enterprise	Project (Number/Name) 675186 / Special Programs (Airborne SIGINT Development - Special Platforms)
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
MQ-1/9 SIGINT Upgrades	Various	Various : Various	-	1.422	Jan 2015	0.700	Jan 2016	2.581	Jan 2017	0.000		2.581	Continuing	Continuing	-
Subtotal			-	1.422		0.700		2.581		0.000		2.581	-	-	-

Remarks
Upgrades the QRC sensors already on the MQ-1/9 fleet

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Flight Test	Various	Various : Various	-	0.800	Jan 2015	2.230	Jan 2016	0.771	Jan 2017	0.000		0.771	Continuing	Continuing	-
Subtotal			-	0.800		2.230		0.771		0.000		0.771	-	-	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

			Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	2.222	2.930	3.352	0.000	3.352	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0304260F / Airborne SIGINT Enterprise	Project (Number/Name) 675186 / Special Programs (Airborne SIGINT Development - Special Platforms)

	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
MQ-1/9 Sensor 1 Modernization																												
MQ-1/9 Sensor 2 Modernization																												
MQ-1/9 Sensor Upgrades																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0304260F / Airborne SIGINT Enterprise	Project (Number/Name) 675186 / Special Programs (Airborne SIGINT Development - Special Platforms)

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
MQ-1/9 Sensor 1 Modernization	1	2015	4	2021
MQ-1/9 Sensor 2 Modernization	1	2015	4	2021
MQ-1/9 Sensor Upgrades	1	2016	4	2021

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0305099F / <i>Global Air Traffic Management (GATM)</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	-	4.157	4.217	4.354	0.000	4.354	4.440	4.524	4.608	4.689	Continuing	Continuing
674689: <i>Global Access Architecture</i>	-	4.157	4.217	4.354	0.000	4.354	4.440	4.524	4.608	4.689	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This program element funds the Air Force Life Cycle Management Center (AFLCMC) Aerospace Management System Division (AMSD), the designated Air Force (AF) Communications, Navigation, Surveillance/Air Traffic Management (CNS/ATM) and Navigation Safety Center of Excellence (COE). The COE provides expertise to Headquarters Air Force, AF major commands (MAJCOM), and weapon system program offices regarding CNS/ATM system technical functions and performance standards for operation in the US National Airspace System (NAS) and international civil airspace. This centralized capability supplements the MAJCOMs and over 50 AF weapon system program offices with resident CNS/ATM technical expertise.

This funding enables the AMSD to monitor and participate in government and industry technical forums responsible for the development and assessment of international civil aviation standards for operations in worldwide airspace. Division personnel analyze civil standards as they are being developed and work to influence them to support Department of Defense (DOD) interests. CNS/ATM experts identify specific technical and engineering criteria and document them in generic performance matrices (GPMs). The COE works with MAJCOM and program office personnel to develop strategies for implementing CNS/ATM requirements on AF weapon systems. Specifically, CNS/ATM experts work with program office systems engineers to tailor the GPMs to apply civil standards to each platform's unique avionics architecture. Once CNS/ATM component integration and testing is completed, COE personnel validate platform CNS/ATM performance against the standards necessary to operate in civil airspace.

The program office manages an Indefinite Delivery/Indefinite Quantity (IDIQ) contract that enables a centralized procurement of CNS/ATM and navigation safety avionics equipment. These contracts are used by aircraft program offices across the DOD, among other federal agencies, and in support of foreign military sales.

This program performs periodic audits required by civil aviation assurance standards on processes used to develop and distribute the Digital Aeronautical Flight Information File (DAFIF) to DOD users. This electronic navigation database, developed and maintained by the National Geospatial Intelligence Agency (NGA), contains critical safety of flight information used by DOD flight crews to fly instrument flight rules procedures worldwide.

This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force				Date: February 2016		
Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>		R-1 Program Element (Number/Name) PE 0305099F / <i>Global Air Traffic Management (GATM)</i>				
B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	
Previous President's Budget	4.157	4.235	4.398	0.000	4.398	
Current President's Budget	4.157	4.217	4.354	0.000	4.354	
Total Adjustments	0.000	-0.018	-0.044	0.000	-0.044	
• Congressional General Reductions	0.000	0.000				
• Congressional Directed Reductions	0.000	0.000				
• Congressional Rescissions	0.000	0.000				
• Congressional Adds	0.000	0.000				
• Congressional Directed Transfers	0.000	0.000				
• Reprogrammings	0.000	0.000				
• SBIR/STTR Transfer	0.000	0.000				
• Other Adjustments	0.000	-0.018	-0.044	0.000	-0.044	
C. Accomplishments/Planned Programs (\$ in Millions)				FY 2015	FY 2016	FY 2017
Title: Contract Support and Administration of DOD Avionics Equipment Catalog				0.710	0.728	0.757
Description: Multiple contract vehicles with multiple avionics vendors that enable centralized procurement of CNS/ATM avionics equipment/components. Supports numerous DOD, US federal agency, and foreign military sales program offices. Provides preferred customer pricing and extended warranties.						
FY 2015 Accomplishments: Generated \$10M in sales and \$1.5M in savings. Provided growth capable equipment to meet Aircraft Dependent Surveillance - Broadcast (ADS-B), area navigation (RNAV) and required navigation perform (RNP) standards, and emerging aircraft identification transponder requirements. Awarded first contract and garnered approval for the next two sole source follow-on contracts through February 2019.						
FY 2016 Plans: Continue administration of current contracts. Evaluate proposals and award new contracts through February 2019. Ensure availability of avionics components required for Federal Aviation Administration (FAA) mandated ADS-B requirements						
FY 2017 Plans: Continue administration of the catalog and monitor industry for new CNS/ATM products which could be added to the catalog.						
Title: Digital Aeronautical Flight Information File (DAFIF) Management				1.800	1.818	1.887
Description: Perform periodic audits of the processes and procedures utilized by organizations involved in the development and distribution of critical safety of flight electronic databases used by aircrews to fly instrument flight rules procedures worldwide.						

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force		Date: February 2016		
Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>		R-1 Program Element (Number/Name) PE 0305099F / <i>Global Air Traffic Management (GATM)</i>		
C. Accomplishments/Planned Programs (\$ in Millions)		FY 2015	FY 2016	FY 2017
Ensures the validity of multiple sources of information critical to implementation of international performance based navigation (PBN) standards.				
<p>FY 2015 Accomplishments: Assisted the NGA to address previously identified process deficiencies and maintain their FAA approvals. COE personnel conducted several navigation data chain audits required to ensure the data/information needed for oceanic/remote and terminal area navigation requirements is accurate and acceptable for use in worldwide airspace. Drove the update to the Radio Technical Commission for Aeronautics' DO-200, Standards for Processing Aeronautical Data. Delivered tool to NGA to automatically validate aeronautical data.</p> <p>FY 2016 Plans: Continue assisting DOD agencies and the NGA to validate the accuracy of DAFIF data and investigate potential automation tools/capabilities to increase database accuracy. Work with AF Flight Standards Agency terminal instrument approach procedure specialists to continue development and publication of Global Positioning System (GPS) based instrument procedures.</p> <p>FY 2017 Plans: Work with DOD agencies and the FAA to develop performance based procedures required to operate without restriction in the NAS and in international civil aviation environments. Continue to publish procedures and databases with the required degree of accuracy/performance necessary to operate manned and remotely piloted aircraft in the NAS.</p>				
<p>Title: Generic Performance Matrix (GPM) Development</p> <p>Description: Participate in technical forums to understand and influence civil aviation standards to incorporate DOD interests. Create new and/or revise the 22 existing GPMs used by AF platform program offices to ensure aircraft comply with civil aviation requirements. Tailor GPMs for program offices to apply standards to unique aircraft avionics architectures. Assist 50+ aircraft program offices with the development of CNS/ATM related test and evaluation plans, the analysis of test/performance data, and the certification of aircraft CNS/ATM performance.</p> <p>FY 2015 Accomplishments: Updated 11 GPMs. Provided standards for platform program offices to plan for equipment upgrades needed to meet the FAA's 1 January 2020 ADS-B Out mandate. Harmonized GPMs with Navy for F-35 and Army for UH-60. Evaluated ability of currently fielded GPS equipment to meet ADS-B requirements</p> <p>FY 2016 Plans:</p>		1.647	1.671	1.710

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0305099F / <i>Global Air Traffic Management (GATM)</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
Continue to engage at industry and civil authority technical working groups to influence aviation standards that benefit DOD users. Continue to define the standards and assist AF and DOD program offices to plan and equip aircraft to meet CNS/ATM requirements. Perform tests on additional fielded GPS systems to determine if they can meet ADS-B requirements.			
<i>FY 2017 Plans:</i> Continue development of performance matrices to ensure AF manned and remotely piloted aircraft are capable and certified to operate in accordance with emerging International Civil Aviation Organization performance based CNS/ATM requirements.			
Accomplishments/Planned Programs Subtotals	4.157	4.217	4.354

D. Other Program Funding Summary (\$ in Millions)

N/A

Remarks

E. Acquisition Strategy

This program primarily supports the acquisition of contractor advisory and assistance service (A&AS) and other technical support personnel to support the efforts described in Section C. This program also provides for the acquisition of contractor services in support of various program management activities within the COE. All of these services are acquired via the issuance of task/delivery orders against existing contractor support contract vehicles available to the CNS/ATM COE.

F. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305099F / <i>Global Air Traffic Management (GATM)</i>	Project (Number/Name) 674689 / <i>Global Access Architecture</i>
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-	-	-	-	-	-	-	-	-	-	-	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
CNS/ATM Center of Excellence: Technical support for CNS/ATM requirement assessments, GPM development, DAFIF navigation data chain audits/certification, and CNS/ATM ID/IQ contract management.	C/T&M	MITRE : Bedford, MA	-	2.574	Oct 2014	2.578	Oct 2015	2.668	Oct 2016	0.000		2.668	Continuing	Continuing	-
CNS/ATM Center of Excellence: Technical support for operational requirement assessments, GPM development, DAFIF navigation data chain audits/certification, and CNS/ATM ID/IQ contract management.	C/CPFF	Jacobs Technology : Lincoln, MA	-	0.800	Dec 2014	0.810	Dec 2015	0.820	Dec 2016	0.000		0.820	Continuing	Continuing	-
CNS/ATM Center of Excellence: Reconfigurable Cockpit Avionics Testbed Laboratory Data Link Subscription	SS/FFP	ARINC : Annapolis, MD	-	0.027	Mar 2015	0.030	Mar 2016	0.030	Mar 2017	0.000		0.030	Continuing	Continuing	-
Subtotal			-	3.401		3.418		3.518		0.000		3.518	-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force													Date: February 2016			
Appropriation/Budget Activity 3600 / 7				R-1 Program Element (Number/Name) PE 0305099F / <i>Global Air Traffic Management (GATM)</i>						Project (Number/Name) 674689 / <i>Global Access Architecture</i>						
Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Subtotal			-	-	-	-	-	-	-	-	-	-	-	-	-	
Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Program office support - PMA (Contract Services)	C/T&M	Quantech Services/ Odyssey Consulting : Bedford, MA	-	0.444	Mar 2015	0.514	Mar 2016	0.524	Mar 2017	0.000		0.524	Continuing	Continuing	-	
Program office support - PMA (Contract Svcs)	C/T&M	Tecolote : Bedford, MA	-	0.080	Oct 2014	0.068	Oct 2015	0.070	Oct 2016	0.000		0.070	Continuing	Continuing	-	
Program office support - PMA (Other Govt Costs)	Various	Various : Bedford, MA	-	0.232	Oct 2014	0.217	Oct 2015	0.242	Oct 2016	0.000		0.242	Continuing	Continuing	-	
Subtotal			-	0.756		0.799		0.836		0.000		0.836	-	-	-	
			Prior Years	FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract	
Project Cost Totals			-	4.157	4.217	4.354	0.000	4.354	-	-	-					
Remarks																

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305099F / <i>Global Air Traffic Management (GATM)</i>	Project (Number/Name) 674689 / <i>Global Access Architecture</i>

	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Generic Performance Matrix Development	[REDACTED]																											
DAFIF Management	[REDACTED]																											
CNS/ATM iGATM I Contract Administration	[REDACTED]																											
CNS/ATM iGATM II Contract Proposal Evaluations	[REDACTED]																											
CNS/ATM iGATM II Contract Administration	[REDACTED]																											

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305099F / <i>Global Air Traffic Management (GATM)</i>	Project (Number/Name) 674689 / <i>Global Access Architecture</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Generic Performance Matrix Development	1	2015	4	2021
DAFIF Management	1	2015	4	2021
CNS/ATM iGATM I Contract Administration	1	2015	2	2016
CNS/ATM iGATM II Contract Proposal Evaluations	1	2015	2	2019
CNS/ATM iGATM II Contract Administration	2	2015	2	2021

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0305110F / <i>Satellite Control Network (SPACE)</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	-	18.806	7.861	15.624	0.000	15.624	18.754	17.934	16.004	16.288	Continuing	Continuing
673276: <i>Satellite Control Network</i>	-	18.806	7.861	15.624	0.000	15.624	18.754	17.934	16.004	16.288	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Air Force Satellite Control Network (AFSCN) is a satellite ground terminal network comprised of two communication nodes (Schriever AFB & Vandenberg AFB) and 15 antenna systems. The antennas are distributed around the globe at seven locations -- Vandenberg Tracking Station (VTS), Diego Garcia Station (DGS), Guam Tracking Station (GTS), Hawaii Tracking Station (HTS), New Hampshire Tracking Station (NHS), Thule Tracking Station (TTS) and Telemetry and Commanding Station (TCS) at RAF Oakhanger, England -- to ensure global coverage for 140 satellites in various orbits. The AFSCN conducts an average of 450 satellite contacts per day supporting Positioning, Navigation and Timing (PNT), Intelligence, Surveillance and Reconnaissance (ISR), Missile Warning, Communications, Weather, Launch Vehicle Support, and Research and Development (R&D) in support of Department of Defense (DoD), Intelligence Community (IC), and National Aeronautics and Space Administration (NASA) operations. While most of the 450 satellite contacts/day are routine command and control activities, the AFSCN is also used for satellite emergencies (e.g. tumbling satellite) because its high power antennas are often the only earthbound assets that can contact a non-responsive satellite to re-establish command & control. During FY14 and FY15 the AFSCN supported 28 space vehicle emergencies resulting in the preservation of \$8.5B worth of satellites. In addition to routine and emergency satellite operations C2, the AFSCN provides support to launch vehicle and early orbit operations, ensuring worldwide antennas receive telemetry as the rocket travels through the atmosphere and transmit commands to a newly orbiting satellite to initiate early orbit checkout. Finally, the AFSCN provides Factory Compatibility Testing (FCT) to ensure satellites and rockets can communicate via the AFSCN before the satellite is launched. These funds are used to develop next-generation tools to improve the AFSCN and ensure the capability is available to support DoD, Intelligence, and civil users.

REMOTE TRACKING STATION (RTS) BLOCK CHANGE (RBC)- SATELLITE ANOMALY RECOVERY AND SUPPORT UPGRADE; ENHANCED HIGH-POWER AMPLIFIER (EHPA): The Air Force will complete development testing of the Enhanced High Power Amplifier (EHPA) first article. The AFSCN is in jeopardy of losing the emergency high power satellite contact capability due to obsolete parts used in the legacy AFSCN system. The EHPA program will develop a new high power amplifier that resolves the obsolescence issue well into the 2020s. FY16 funds support the transition and operational turnover of the first EHPA.

UNIFIED S-BAND (USB) UPLINK: The Air Force is adjusting the AFSCN for spectrum-sharing with industry and demonstrating the ability to migrate away from the current L-Band uplink / S-Band downlink spectrum to the Unified S-Band (USB) spectrum. RDT&E funds support a first article integration of USB into the AFSCN baseline to begin supporting factory compatibility testing. FY 2016 funding provides S-Band uplink transmitter to enable commanding of satellites using USB frequency in addition to L-Band frequency. USB capability is currently only being implemented on the RBC transportable to allow factory compatibility testing prior to launch of dual band satellites (per revised AFSPC requirement). RBC transportable is made up of 3 portable components: a Core equipment van, an HPA van, and an antenna van.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0305110F / <i>Satellite Control Network (SPACE)</i>
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ELECTRONIC SCHEDULING AND DISSEMINATION (ESD 3.0): ESD 3.0 is a significant upgrade to the currently fielded version 2.7. The upgrade will allow satellite operators to request contact time with their satellites via the shared AFSCN antennas, automatically deconflict overlapping requests, create a schedule, and publish the schedule in real-time to all users. The Air Force completed the first ESD 3.0 operational confidence test 3Q FY15. Deficiencies from that event are expected to be resolved in FY16. Initial Developmental Testing (DT) is scheduled for 4Q FY16. Operational Testing (OT) and PEO Certification is anticipated in 3Q FY17. Turnover to operations is expected by 4Q FY17.

AFSCN ENHANCEMENT AND DEFICIENCY RESOLUTION: Provides test, cyber security, requirements management, and system architecture support to the AFSCN.

This program is in Budget Activity 7, Operational System Development. BA 7 includes development efforts to upgrade systems that have been fielded and anticipate production funding in the current or subsequent fiscal year.

B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	20.806	7.879	21.385	0.000	21.385
Current President's Budget	18.806	7.861	15.624	0.000	15.624
Total Adjustments	-2.000	-0.018	-5.761	0.000	-5.761
• Congressional General Reductions	0.000	-0.018			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	-2.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	-5.761	0.000	-5.761

Change Summary Explanation

FY17: -\$5.761M for higher Department priorities.

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
Title: Remote Tracking Station (RTS) Block Change (RBC) - Satellite Anomaly Recovery and Support Upgrade; Enhanced High-Power Amplifier (EHPA):	0.529	5.653	-
Description: RBC development replaces outdated, unique RTS equipment with standardized equipment and technology to reduce failures and enhance sustainability. Provides Advisory and Assistance Services (A&AS) to execute the RBC upgrade effort. Effort accomplished under Satellite Control Network Contract (SCNC).			
FY 2015 Accomplishments:			

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force		Date: February 2016		
Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>		R-1 Program Element (Number/Name) PE 0305110F / <i>Satellite Control Network (SPACE)</i>		
C. Accomplishments/Planned Programs (\$ in Millions)		FY 2015	FY 2016	FY 2017
Completed EHPA Critical Design Review and some subcontractor integration testing. EHPA Preliminary Design Review completed November 2014 and Critical Design Review completed March 2015. FY 2016 Plans: Complete Developmental & Operational testing 4Q FY2016. Field First Article/Operational Acceptance of EHPA 1Q FY2017. Effort accomplished under Satellite Control Network Contract (SCNC).				
Title: Unified S-band (USB) uplink Description: Develop First Article Demonstration of USB uplink transmitter to enable commanding of satellites using USB frequency in addition to the legacy L-band frequency uplink commanding. Also provides Federally Funded Research and Development Center (FFRDC) support. FY 2015 Accomplishments: Completed Preliminary and Critical Design Reviews; integrated and installed hardware and software. Effort accomplished under SCNC contract. FY 2016 Plans: Initiate implementation and subsystem integration. Activities include software installation, integration and checkout, vendor acceptance test, software qualification test and contractor system testing. Complete government developmental and operational testing as well as operational acceptance.		0.568	0.554	-
Title: AFSCN Enhancement and Deficiency Resolution Description: Provide test, cybersecurity, requirements management, and system architecture support to the AFSCN. Also provides FFRDC support and performs AFSCN Systems Engineering and Integration (SE&I) activities. FY 2015 Accomplishments: Completed developmental testing and initiated operational testing. Conducted the initial ESD 3.0 Operational Test 3Q FY15. Deficiencies identified should be corrected in FY16. FY 2016 Plans: Provide test, cybersecurity, and work package planning for RBC electronics core activities; monitor RTS performance at RBC sites; continue future requirements development; update AFSCN architecture roadmap. FY 2017 Plans: Provides cybersecurity solutions and testing in support of 92 Information Operations Squadron (92nd IOS), Space Security and Defense Program (SSDP), Cyber computer network defense (CND), HQ AFSPC Cyber Team, and Red/Blue Team-discovered requirements, monitor, analyze and resolve RTS performance (low/high power signal response and power measurement		0.000	0.000	5.838

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0305110F / <i>Satellite Control Network (SPACE)</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
accuracy, inconsistent range performance, and low data rate deficiencies). In addition, develop and document an enterprise architecture (EA) using the views prescribed in the Department of Defense Architecture Framework (DoDAF). Future activities include: AFSCN Test Bed (ATB) upgrades, Range Automation and Multi-band/Phased Array antenna studies, and work package planning for RBC electronics core activities. Further, monitor and analyze RTS performance at RBC sites, continue future requirements development, and update AFSCN architecture roadmap.			
Title: Electronic Scheduling and Dissemination System (ESD) 3.0	17.709	1.654	9.786
Description: Develop an upgrade for the aging, increasingly-unsustainable resource scheduling system needed to coordinate and manage satellite supports using the AFSCN antennas. Also provides FFRDC support.			
FY 2015 Accomplishments: Completed contractor Developmental Testing and initiated government Developmental Testing. Conducted risk-reduction testing with user participation during 3Q FY15.			
FY 2016 Plans: Correct critical software deficiency reports (DRs) identified during Initial Developmental Tests and risk-reduction testing. Conduct initial Developmental Testing Phase (DTP) during 4Q FY16.			
FY 2017 Plans: Complete DTP and enter Operational Testing Phase in 3Q FY17 to include integrated systems test. After DTP, provide full scale user training and begin initial deployment to include a Force Development Evaluation. Obtain PEO certification and Operational Acceptance.			
Accomplishments/Planned Programs Subtotals	18.806	7.861	15.624

D. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u>	<u>FY 2017</u>	<u>FY 2017</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To</u>	<u>Total Cost</u>
			<u>Base</u>	<u>OCO</u>	<u>Total</u>					<u>Complete</u>	
• OPAF: BA03: Line Item # 836760: <i>AF Satellite Control Network Space</i>	54.436	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
• SPAF: BA01: Line Item # AFSCOM:: <i>AF Satellite Comm System</i>	0.000	74.673	43.375	0.000	43.375	57.395	44.507	47.924	48.785	Continuing	Continuing

Remarks
Procures the mission critical electronics and telecommunications equipment to upgrade the aging AFSCN Range and Network Operations segments.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0305110F / <i>Satellite Control Network (SPACE)</i>	
E. Acquisition Strategy RDT&E efforts focus on completing upgrades as well as future architectures and studies to ensure the best use of investment funding. The SE&I contractor maintains the DoD Architecture Framework (DoDAF) architecture and requirements baseline for Government approval and may perform studies to determine Government options. Limited RDT&E will be applied to the Consolidated Air Force Satellite Control Network (AFSCN) Modifications, Maintenance, and Operations (CAMMO) contract when sustaining engineering expertise is needed to finalize Government-approved architectures. FFRDC technical depth and breadth will be leveraged to ensure AFSCN modernization efforts are compatible with mission rules and do not pose a risk to safe and cost-effective satellite contacts.		
F. Performance Metrics Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305110F / <i>Satellite Control Network (SPACE)</i>	Project (Number/Name) 673276 / <i>Satellite Control Network</i>
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Satellite Control Network Contract (SCNC)	Various	Honeywell : Colorado Springs, CO	-	15.913	Dec 2014	2.854	Dec 2015	11.051	Dec 2016	0.000		11.051	Continuing	Continuing	TBD
AFSCN Enterprise Systems Engineering and Integration	C/T&M	TBD : TBD	-	0.000		2.585	Dec 2015	2.198	Dec 2016	0.000		2.198	Continuing	Continuing	TBD
Technical Mission Analysis	RO	Aerospace Corp : El Segundo, CA	-	1.157	Oct 2014	1.322	Oct 2015	1.362	Oct 2016	0.000		1.362	Continuing	Continuing	TBD
Subtotal			-	17.070		6.761		14.611		0.000		14.611	-	-	-

Remarks
Enterprise SE&I contract being competed with contract award planned for FY16.

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Test & Evaluation	C/T&M	Leidos : El Segundo, CA	-	0.930	Oct 2014	0.117	Oct 2015	0.000		0.000		0.000	Continuing	Continuing	TBD
Subtotal			-	0.930		0.117		0.000		0.000		0.000	-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305110F / <i>Satellite Control Network (SPACE)</i>	Project (Number/Name) 673276 / <i>Satellite Control Network</i>
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Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
FFRDC	RO	Aerospace Corp : El Segundo, CA	-	0.806	Oct 2014	0.983	Oct 2015	1.013	Oct 2016	0.000		1.013	Continuing	Continuing	TBD
Subtotal			-	0.806		0.983		1.013		0.000		1.013	-	-	-

	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
	Project Cost Totals		-	18.806	7.861	15.624	0.000	-	-

Remarks

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305110F / <i>Satellite Control Network (SPACE)</i>	Project (Number/Name) 673276 / <i>Satellite Control Network</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
EHPA First Article Test & Gov't accept	2	2016	2	2017
USB integration/test/Gov't accept	2	2016	4	2017
ESD Developmental/Operational Test & Gov't accept	4	2016	4	2017
AFSCN Enhancements and Deficiency Resolution	1	2015	4	2021

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0305111F / <i>Weather Service</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	-	19.404	29.826	19.974	0.000	19.974	26.577	27.133	27.691	28.181	Continuing	Continuing
672738: <i>Weather Service</i>	-	19.404	29.826	19.974	0.000	19.974	26.577	27.133	27.691	28.181	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This budget activity funds operational development necessary to acquire, sustain, and enhance 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. Program Management Administration costs include Federally Funded Research and Development Centers and Advisory and Assistance Service. AFWWS provides timely, accurate, consistent and relevant space and atmospheric (a.k.a. terrestrial) weather information for global battlespace situational awareness. AFWWS supports worldwide operations of Air Force and Army warfighters, Special Operation Forces, and other government agencies with weather observing and forecasting capabilities at in-garrison and deployed locations, as well as centralized, reach-back capabilities. AFWWS activities align under four capability areas: Weather Data Collection, Weather Data Analysis and Dissemination, Weather Forecasting, and Product Tailoring/Warfighter Applications. This alignment ensures an integrated and systems-oriented approach to program management decisions.

Weather Data Collection provides automated atmospheric and space environmental sensing capabilities at fixed and deployed locations worldwide. Projects include Next Generation Radar (WSR-88D) and Upper Air Observing Follow-On. Funding will enhance system technical performance based upon state-of-the-art signal processor technology for enhanced discrimination of precipitation types, severe weather detection, and rainfall amount estimations and will continue operationalizing new upper air sounding capability.

Weather Data Analysis and Dissemination provides a net-centric infrastructure that assimilates worldwide sources of atmospheric and space weather data and produces decision-quality information for warfighters. Improved analysis of real-time weather information supports DoD's Warfighting and Enterprise Information Environment Mission Areas, as well as DoD's role in transformation of the National Airspace System through the Next Generation Air Transportation System, and enhances Air Force energy security plans. In FY16 the Air Force Weather-Web Services (AFW-WEBS) moved into this capability area from Weather Forecasting to better align its function of integration of net-centric capabilities. FY17 funding will implement Inc 4, Build C, Release 3; develop and implement Inc 4, Build C, Release 4; and develop Inc 4, Build D, Release 1 in order to enhance the capability to ingest, process, store, access, and disseminate meteorological/oceanographic data via upgrades to the web services architecture to expand the Open Geospatial Consortium services and upgrade the large-scale data processing to accommodate new environmental satellite and numerical weather modeling data.

Weather Forecasting provides advanced scientific numerical weather prediction capabilities for automated, high resolution forecast products for mission execution, rehearsal, and planning. Weather Forecasting includes projects for Numerical Weather Modeling; Weather Services - Live, Virtual, Constructive (WS-LVC, formerly Environmental Data Cube System Support), and the Space Weather Analysis and Forecast System. FY17 funding will complete Air Force Global Air Land Weather

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0305111F / <i>Weather Service</i>
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Exploitation Model (GALWEM) integration into operations and continue to integrate ensemble and four-dimensional data ingest schemes in order to improve convection and cloud forecasting techniques and enhancing aerosol modeling algorithms.

Product Tailoring/Warfighter Applications provide timely, local, and regional target-scale weather information to operational commanders for a given Area of Responsibility and at tactical levels they provide front-line weather information to warfighters, including weather forces, conducting combat operations. This supports the 'train as you fight' concept by assuring fixed and deployable systems have an equivalent operator look and feel. Wx Common Component.

The FY17 funding request was reduced by \$6.590M to account for the availability of prior year execution funds.

This program is in Budget Activity 7, Operational System Development, because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	20.102	29.955	26.564	0.000	26.564
Current President's Budget	19.404	29.826	19.974	0.000	19.974
Total Adjustments	-0.698	-0.129	-6.590	0.000	-6.590
• Congressional General Reductions	0.000	-0.129			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-0.698	0.000			
• Other Adjustments	0.000	0.000	-6.590	0.000	-6.590

Change Summary Explanation

AF FY16 FFRDC reduction of \$129K

AF FY17 funding request was reduced by \$6.590M to account for the availability of prior year execution funds.

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
Title: Next Generation Radar (NEXRAD)	0.191	0.450	0.200
Description: NEXRAD is a tri-agency program that manages a nation-wide doppler weather radar network to provide radar data and products for flight operations and resource protection. This effort was formerly included in "Weather Data Collection."			
FY 2015 Accomplishments:			

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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>		R-1 Program Element (Number/Name) PE 0305111F / <i>Weather Service</i>		
C. Accomplishments/Planned Programs (\$ in Millions)		FY 2015	FY 2016	FY 2017
<p>- Participated with National Weather Service and Federal Aviation Administration to fine tune and develop differential reflectivity (ZDR) calibration methods.</p> <p>FY 2016 Plans:</p> <p>- Participating with National Weather Service and Federal Aviation Administration to develop hail size discriminator algorithms.</p> <p>FY 2017 Plans:</p> <p>- Will participate with National Weather Service and Federal Aviation Administration to develop algorithms to aid in hydrometeor classification, and determining melting layer and quantitative precipitation values.</p>				
<p>Title: Weather Data Analysis (WDA)</p> <p>Description: WDA provides a net-centric infrastructure that assimilates worldwide sources of atmospheric and space weather data and produces decision-quality information for warfighters. In FY15, this effort included AF Weather Web Services (AFW-WEBS) which was formerly included in "Weather Forecasting."</p> <p>FY 2015 Accomplishments:</p> <p>- Implemented Inc4, Build B, Release 4 and developed Inc4, Build C, Release 1 in order to enhance the capability to ingest, process, store, access, and disseminate meteorological oceanographic data via upgrades to the web services architecture to expand the Open Geospatial Consortium services and improve the presentation system.</p> <p>FY 2016 Plans:</p> <p>- Implementing Inc 4, Build C, Release 1; developing and implementing Inc4, Build C, Release 2; and developing Release 3 in order to enhance the capability to ingest, process, store, access, and disseminate meteorological/oceanographic data via upgrades to the web services architecture to expand the Open Geospatial Consortium services and upgrade the large-scale data processing to accommodate new environmental satellite and numerical weather modeling data.</p> <p>FY 2017 Plans:</p> <p>- Will implement Inc4, Build C, Release 3, develop and implement Inc4, Build C, Release 4, and develop Inc4, Build D, Release 1 in order to enhance the capability to ingest, process, store, access, and disseminate meteorological/oceanographic data via upgrades to the web services architecture to expand the Open Geospatial Consortium services and upgrade the large-scale data processing to accommodate new environmental satellite and numerical weather modeling data as well as begin efforts to implement an Air Force Weather Weapon System Single Services Baseline.</p>		5.960	13.334	7.909
<p>Title: Numerical Weather Modeling (NWM)</p>		3.860	10.717	8.704

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force		Date: February 2016		
Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>		R-1 Program Element (Number/Name) PE 0305111F / <i>Weather Service</i>		
C. Accomplishments/Planned Programs (\$ in Millions)		FY 2015	FY 2016	FY 2017
<p>Description: NWM provides advanced scientific numerical weather prediction capabilities for automated, high resolution forecast products for mission planning, rehearsal, and execution. This effort was formerly titled "Weather Forecasting" and included efforts that are now identified separately.</p> <p>FY 2015 Accomplishments: - Continued integration of advanced atmospheric and space weather forecast capabilities, including continued development and integration of the unified cloud detection capabilities and evaluation of satellite radiances for inclusion in atmospheric models.</p> <p>FY 2016 Plans: - Implementing the Air Force Global Air Land Weather Exploitation Model (GALWEM) and developing and integrating ensemble and four-dimensional data ingest schemes in order to improve convection and cloud forecasting techniques and enhancing aerosol modeling algorithms.</p> <p>FY 2017 Plans: - Will complete Air Force Global Air Land Weather Exploitation Model (GALWEM) integration into operations and continue to integrate ensemble and four-dimensional data ingest schemes in order to improve convection and cloud forecasting techniques and enhancing aerosol modeling algorithms.</p>				
<p>Title: Space Weather Analysis and Forecast System (SWAFS)</p> <p>Description: SWAFS is designed to enhance and sustain a single integrated space weather software baseline operating in a net-centric environment at all security levels within the 557th Weather Wing enterprise architecture.</p> <p>SWAFS was declared FOC in FY15 and then modified to focus on the Global Assimilation of Ionospheric Measurements(GAIM)Full Physics model, to satisfy future requirements, including the development of other new models and science algorithms that do not currently exist and processing space weather data that is not currently available. Funding also provides for program office and related support activities.</p> <p>Capabilities provided:</p> <p>Return to service; corrective, adaptive, and capability improvement maintenance for the operational software baseline</p> <p>SWAFS accepts space weather data and uses models and/or algorithms to create and disseminate specified space weather analysis and forecast products</p>		6.483	4.000	2.274

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force		Date: February 2016		
Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>		R-1 Program Element (Number/Name) PE 0305111F / <i>Weather Service</i>		
C. Accomplishments/Planned Programs (\$ in Millions)		FY 2015	FY 2016	FY 2017
Users: COCOMs, MAJCOMs, SPADOC, NRO, Navy & Army				
<p>FY 2015 Accomplishments:</p> <ul style="list-style-type: none"> - SWAFS development focused on integration of Global Assimilation of Ionospheric Measurements (GAIM) Full Physics model to improve ionospheric specifications and forecasts; add to the net centric data delivery of space weather to AFW-WEBS to ensure warfighter access to authoritative, deliverable, resilient, and timely space weather data/products. - New data ingests of COSMIC2/SSAEM, GOES-R, RINEX, and GPS particle data will be applied to provide necessary data for scintillation/ionospheric modeling and satellite anomaly attribution; and model upgrades for the auroral oval, HF comm coverage maps and point-to-point forecasts. <p>FY 2016 Plans:</p> <ul style="list-style-type: none"> - The SWAFS program is continuing with the Net-Centric data transition as well as SCINDA 2.0 and OVATION Prime integration. Also, SWAFS is starting work on GAIM-Full Physics enhancements such a D-Region and GAIM CAP. Furthermore, the funding will be utilized for Program Support and lab activities to meet user requirements. <p>FY 2017 Plans:</p> <ul style="list-style-type: none"> - GAIM-Full Physics model will reach FOC, incorporating D-Region capability and closing the capability gap in the lower ionospheric layers. Funds integration of Global Ionospheric Scintillation Model in order to forecast scintillation's impact on the phase and amplitude of signals passing through the ionosphere. Funding also provides for program office and related support activities. 				
<p>Title: Weather Services-Live, Virtual, and Constructive (WS-LVC)</p> <p>Description: - WS-LVC provides environmental representations to the DoD Modeling and Simulation community. This effort was formerly called Environmental Data Cube System Support (EDCSS) and included in "Weather Forecasting."</p> <p>FY 2015 Accomplishments:</p> <ul style="list-style-type: none"> - Continued development of platform specific data and effects for Air Force assets integration into operational systems. <p>FY 2016 Plans:</p> <ul style="list-style-type: none"> - Continuing incremental development of Air and Space Natural Environment data and associated effects for use in tailorable scenarios within warfighter models and simulations. <p>FY 2017 Plans:</p>		0.690	1.325	0.887

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0305111F / <i>Weather Service</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
- Will integrate weather data and effects into Air Force and Army Warfighter Modeling and Simulation platforms by improving representation of Air and Space Natural Environment data and associated effects, mitigating data gaps in air and space domains, and developing software to transition to a agile software development process. Title: Joint Environmental Toolkit (JET) Description: JET provides timely, local and regional target-scale weather information to operational commanders for a given Area of Responsibility, and at tactical levels provides weather information to front-line warfighters in support of combat operations. This effort was formerly titled "Product Tailoring/Warfighter Applications." FY 2015 Accomplishments: - Finalized software development and integration of regional and tactical weather systems and integration with warfighter command and control systems. No future RDT&E efforts are planned with this system.	2.220	-	-
Accomplishments/Planned Programs Subtotals			
	19.404	29.826	19.974

D. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• OPAF: BA07: Line Item # 833070: <i>Weather Observation Forecast</i>	16.309	21.511	21.667	0.000	21.667	23.725	20.283	21.737	22.127	Continuing	Continuing
• OPAF: BA07: Line Item # 838010: <i>Comm Elect Mods</i>	12.075	8.492	8.646	0.000	8.646	10.058	8.837	8.994	9.155	Continuing	Continuing
• OPAF: BA07: Line Item # 86190A: <i>Spares and Repair Parts</i>	1.605	0.278	0.719	0.000	0.719	0.932	0.797	0.811	0.824	Continuing	Continuing

Remarks

E. Acquisition Strategy
 AF Weather utilizes spiral and incremental development efforts using multiple contracts supporting a family of ACAT III Programs of Record through development, fielding, and sustainment.

 Cost Plus contracts are utilized for software development and sustainment and Fixed Firm Price contracts for COTS systems procurements, hardware procurements and Contract Logistics Support (CLS) system sustainment efforts. Pre-competed GSA and Defense MicroElectronics Activity (DMEA) contract vehicles are leveraged when appropriate, and competitive and small-business awards are favored.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force Date: February 2016

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The Air Force Program Executive Officer for Battle Management (AFPEO BM) and the Air Force Program Executive Officer for the Space Systems (AFPEO SMC) are the PEOs for the AFWWS. AFPEO BM manages the ground-based atmospheric sensing and data analysis, atmospheric forecast systems, and product tailoring warfighter applications. AFPEO SMC manages the ground-based segments of space weather collection platforms as well as the Space Weather Analysis and Forecasting System. Both the AFPEO BM and AFPEO SMC are their respective program's Milestone Decision Authority (MDA).

F. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305111F / <i>Weather Service</i>	Project (Number/Name) 672738 / <i>Weather Service</i>
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
WDA 1, Develop centralised web service capability (WDA 4C)	C/CPIF	Northrop Grumman : Bellevue, NE	-	3.111	Mar 2015	6.635	Dec 2015	3.326	Dec 2016	0.000		3.326	Continuing	Continuing	-
WDA 2, Development and integration of weather analysis software (AFW-WEBS)	C/CPFF	Raytheon : Long Beach, CA	-	1.762	Jul 2015	4.059	Nov 2015	3.410	Dec 2016	0.000		3.410	Continuing	Continuing	-
WDA 4, Development Contract and integration of weather analysis software	MIPR	AFRL : Wright - Patterson, OH	-	0.040	Sep 2015	0.040	Sep 2016	0.040	Sep 2017	0.000		0.040	Continuing	Continuing	-
WDA 5, Weather Common Component (WX CC)	C/CPIF	Northrop Grumman : Bellevue, NE	-	0.000		1.000	Feb 2016	0.000		0.000		0.000	Continuing	Continuing	-
JET. Integrate weather systems with warfighter C4I systems	C/CPIF	Raytheon : Omaha, NE	-	1.139	Nov 2014	0.000		0.000		0.000		0.000	Continuing	Continuing	-
NWM 1 - Perform software enhancements to the mesoscale production model	MIPR	NCAR : Boulder, CO	-	0.327	Mar 2015	2.284	Feb 2016	0.503	Feb 2017	0.000		0.503	Continuing	Continuing	-
NWM 2 - Improve land information system (LIS) application, providing earth surface boundary characterization for numerical modeling	MIPR	NASA : Greenbelt, MD	-	0.701	May 2015	2.047	Feb 2016	1.046	Feb 2017	0.000		1.046	Continuing	Continuing	-
NWM 3 - Develop model data assimilation application, ensemble forecast procedures, and convective-scale resolution model capability.	C/CPIF	Northrop Grumman : Bellevue, NE	-	2.090	Mar 2015	5.298	Dec 2015	5.579	Jan 2017	0.000		5.579	Continuing	Continuing	-
WS-LVC	MIPR	NWACT : Orlando, FL	-	0.491	Feb 2015	1.087	Feb 2016	0.663	Apr 2017	0.000		0.663	Continuing	Continuing	-
NEXRAD	MIPR	NOAA/NWS : Silver Spring, MD	-	0.191	Jun 2015	0.448	Jun 2016	0.200	Jun 2017	0.000		0.200	Continuing	Continuing	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305111F / <i>Weather Service</i>	Project (Number/Name) 672738 / <i>Weather Service</i>
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
SWAFS development integration and sustainment of the GAIM-full physics version	C/CPIF	Northrop Grumman : Bellevue, NE	-	4.650	Sep 2015	3.590	Sep 2016	1.989	Oct 2016	0.000		1.989	Continuing	Continuing	-
SWAFS 2- perform verification and validation report on the GAIM-full physics model	MIPR	AFRL : Kirtland AFB, NM	-	0.449	Sep 2015	0.000		0.000		0.000		0.000	Continuing	Continuing	-
SWAFS 3- perform integration of DMSP SSULI data set into the GAIM- full physics model	MIPR	NRL : Washington, DC	-	0.188	Sep 2015	0.000		0.000		0.000		0.000	Continuing	Continuing	-
SWAFS 4- perform integration of DMSP SSUSI data set into the GIAM- full physics model	MIPR	NAVSEA/APL : Laurel, MD	-	0.159	Sep 2015	0.000		0.000		0.000		0.000	Continuing	Continuing	-
SWAFS 5- software maintenance to the National Geophysical Data Center	MIPR	Global Ionosonde : Boulder, CO	-	0.623		0.000		0.000		0.000		0.000	Continuing	Continuing	-
Subtotal			-	15.921		26.488		16.756		0.000		16.756	-	-	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
46th TS/JITC AFLCMC	Various	Various : Various, FL	-	0.631	Oct 2014	0.563	Nov 2015	0.434	Nov 2016	0.000		0.434	Continuing	Continuing	-
Subtotal			-	0.631		0.563		0.434		0.000		0.434	-	-	-

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305111F / <i>Weather Service</i>	Project (Number/Name) 672738 / <i>Weather Service</i>
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	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Next Generation Radar	[Redacted]																											
Upper Air Sensing	[Redacted]																											
Weather Data Analysis	[Redacted]																											
Weather Data Analysis Inc 4 Build B Delivery	[Redacted]																											
Weather Data Analysis Inc 4 Build C Delivery	[Redacted]																											
Weather Data Analysis Inc 4 Build D Delivery	[Redacted]																											
Weather Data Analysis Inc 4 Build D (MS C - MAR 2020)	[Redacted]																											
Weather Data Analysis Inc 4 Build E Delivery	[Redacted]																											
Numerical Weather Modeling	[Redacted]																											
Live, Virtual, and Constructive Weather Services	[Redacted]																											
Live, Virtual, and Constructive 1.0 Delivery	[Redacted]																											
Live, Virtual, and Constructive (MS C - MAR 2016)	[Redacted]																											
Live, Virtual, and Constructive 1.1 Delivery	[Redacted]																											
Live, Virtual, and Constructive 1.2 Delivery	[Redacted]																											
Live, Virtual, and Constructive 1.3 Delivery	[Redacted]																											
Live, Virtual, and Constructive 1.4 Delivery	[Redacted]																											
Live, Virtual, and Constructive 1.5 Delivery	[Redacted]																											
Space Weather Anaylsis and Forecasting System Software Delivery Upgrade	[Redacted]																											
Space Weather Anaylsis and Forecasting System - Full GAIM Physics (Post MS B - JUN 2017)	[Redacted]																											

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305111F / <i>Weather Service</i>	Project (Number/Name) 672738 / <i>Weather Service</i>
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	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Joint Environmental Toolkit -- Inc 2 Build C Delivery																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305111F / <i>Weather Service</i>	Project (Number/Name) 672738 / <i>Weather Service</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Next Generation Radar	1	2015	4	2021
Upper Air Sensing	1	2015	4	2019
Weather Data Analysis	1	2015	4	2021
Weather Data Analysis Inc 4 Build B Delivery	1	2015	3	2015
Weather Data Analysis Inc 4 Build C Delivery	2	2015	4	2017
Weather Data Analysis Inc 4 Build D Delivery	4	2017	1	2020
Weather Data Analysis Inc 4 Build D (MS C - MAR 2020)	1	2020	1	2020
Weather Data Analysis Inc 4 Build E Delivery	1	2020	4	2021
Numerical Weather Modeling	1	2015	4	2021
Live, Virtual, and Constructive Weather Services	1	2015	4	2021
Live, Virtual, and Constructive 1.0 Delivery	1	2015	1	2016
Live, Virtual, and Constructive (MS C - MAR 2016)	1	2016	1	2016
Live, Virtual, and Constructive 1.1 Delivery	2	2015	3	2016
Live, Virtual, and Constructive 1.2 Delivery	2	2016	3	2017
Live, Virtual, and Constructive 1.3 Delivery	2	2017	3	2018
Live, Virtual, and Constructive 1.4 Delivery	2	2018	3	2019
Live, Virtual, and Constructive 1.5 Delivery	2	2019	3	2020
Space Weather Analysis and Forecasting System Software Delivery Upgrade	1	2015	4	2021
Space Weather Analysis and Forecasting System - Full GAIM Physics (Post MS B - JUN 2017)	4	2015	4	2021
Joint Environmental Toolkit -- Inc 2 Build C Delivery	1	2015	4	2015

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0305114F / <i>Air Traffic Control, Approach, and Landing System (ATCALs)</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	-	25.309	19.392	9.770	0.000	9.770	6.288	6.316	6.498	6.614	Continuing	Continuing
673587: <i>Air Traffic Control Systems</i>	-	25.309	19.392	9.770	0.000	9.770	6.288	6.316	6.498	6.614	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

To support the Air Force worldwide flying mission, this program element funds research, development, and management of new air traffic control communications, surveillance, positioning, and precision approach and landing systems. When applicable, this includes joint efforts with the Federal Aviation Administration (FAA) and coordination with the International Civil Aviation Organization and the North Atlantic Treaty Organization (NATO). ATCALs development funding currently focuses on the Next Generation (NextGen) Air Transportation System (ATS) and Deployable Radar Approach Control (D-RAPCON) programs as described below.

NextGen ATS. This is an interagency effort designed to enable the transition from a ground infrastructure dominated Air Traffic Management capability for the U.S. National Airspace System (NAS) to a capability that leverages advances in Performance Based Navigation (PBN), non-radar based surveillance services, and transition from solid-state analogue voice communications to networked digital voice and data exchange. Per Deputy Secretary of Defense Direction (28 Dec 07 Memo), the Air Force is the DoD lead Service for NextGen ATS implementation and architecture development. NextGen ATS will be built on key elements from existing programs and technologies and on new systems under development. As these technologies and architectures mature, ground system upgrades will be coordinated and fielded concurrently with aircraft avionics capabilities that are acquired and integrated into Air Force aircraft (manned and unmanned). These efforts are a subset of the Communication, Navigation, and Surveillance/Air Traffic Management (CNS/ATM) program in PE 0305099F and will involve aircraft avionics as well as fixed based and deployable air traffic control and landing systems. FY17 efforts will continue to use the Lead Service Office (LSO) Enterprise Architecture process to develop a NextGen ATS DoD Strategic Roadmap, Integrated Master Schedule (IMS), and Command and Control Core Function Support Plan, outlining DoD and Air Force equities and requirements, via in-depth analysis of FAA NextGen ATS programs and timelines. Portfolio analysis will be captured in DoD NextGen ATS charters to guide Services through a broad and complex NextGen ATS environment. To minimize integration costs, the LSO and Joint Program Office (JPO) along with the Air Force Flight Standards Agency (AFFSA) will also assist aircraft depots, program offices, and major commands in combining military (Mode-5 Identification Friend or Foe (IFF), Global Positioning System (GPS) Military (M)-Code), and civil avionics upgrades, including Automatic Dependent Surveillance Broadcast (ADS-B), Data Communication (DataComm), and PBN. To support LSO and JPO NextGen ATS decision making, AFFSA and major command users will use supporting infrastructure tools, such as the CNS/ATM Global Aviation Initiatives, Mandates, and Standards (GAIMS) database and a DoD Fleet-Wide Avionics Repository (F-WAR). In support of remotely piloted aircraft (RPA) operations, JPO efforts will also continue to support requests for implementation of GBSAA at new locations. Additionally, AFFSA will continue efforts to examine new civil air traffic control and landing system technologies that may have military utility such as a remote virtual Air Traffic Control tower capability. In total, these efforts will focus on enabling DoD aircraft to take advantage of NextGen envisioned NAS efficiencies, developing policies/procedures to reduce costs while ensuring airspace access, seamlessly integrating RPAs into the NAS and international airspaces, improving the display of aircraft position to air traffic controllers, determining future requirements for digital communications with manned and unmanned aircraft, and enhancing flight safety.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0305114F <i>I Air Traffic Control, Approach, and Landing System (ATCALs)</i>
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Deployable Radar Approach Control (D-RAPCON). D-RAPCON will replace the 40 year old AN/MPN-14K and AN/TPN-19 Airport Surveillance Radar (ASR) and Operations Shelter (OPS) subsystems with state of the art digital systems. Modification and overhaul of the existing systems has proven to be ineffective due to diminishing manufacturing sources. On average, due to systemic equipment failures, no more than three of the existing 17 systems are deployable at any given time. The current AN/TPN-19 and AN/MPN-14K Operational Availability rates are 69% and 67% respectively versus a requirement for D-RAPCON of 98%. D-RAPCON will provide aircraft surveillance/sequencing, air traffic control communications, and automation capabilities for terminal area air traffic control operations. D-RAPCON will also be deployed with a fixed base or deployable Instrument Landing System and a fixed or mobile control tower to provide a complete air traffic control capability. The D-RAPCON will support tactical military and worldwide humanitarian operations and provide a capability to support domestic disaster relief. The primary surveillance radar coverage (non-cooperative targets) is out to 60 nautical miles (nm) and the secondary surveillance radar coverage (cooperative targets) will increase from 120 nm to 200 nm. The D-RAPCON Capability Development Document (CDD) was approved by the Air Force Requirements Oversight Council on 8 Feb 11. FY17 funds will complete developmental testing (DT) and operational testing (OT), and perform any deficiency mitigation work as necessary. In FY17, the program office will also be preparing for MS C and approval for a production representative unit and, a full rate production decision (FRP). Prior to FRP approval, there are also six system certifications which must be accomplished. These include: Air Traffic Control Radar Beacon System Identification Friend or Foe, Mark XII/Mark XIIA Systems Certification; National Airspace System Certification; Shelter/Transportability Certification; Electro-Magnetic Spectrum Certification; Information Assurance Certification; and Accreditation and Interoperability and Supportability Certification. Activities also include studies and analysis to support both current program planning and execution and future program planning. Related OPAF funds are in the PE 0305114F Weapon System Code 833010.

This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	26.087	21.485	9.867	0.000	9.867
Current President's Budget	25.309	19.392	9.770	0.000	9.770
Total Adjustments	-0.778	-2.093	-0.097	0.000	-0.097
• Congressional General Reductions	0.000	-0.093			
• Congressional Directed Reductions	0.000	-2.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-0.778	0.000			
• Other Adjustments	0.000	0.000	-0.097	0.000	-0.097

Congressional Add Details (\$ in Millions, and Includes General Reductions)

Project: 673587: *Air Traffic Control Systems*

Congressional Add: *Ground Based Sense and Avoid (GBSAA)*

	FY 2015		FY 2016
	3.000		0.000

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development	R-1 Program Element (Number/Name) PE 0305114F I Air Traffic Control, Approach, and Landing System (ATCALs)
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Congressional Add Details (\$ in Millions, and Includes General Reductions)	FY 2015	FY 2016
Congressional Add Subtotals for Project: 673587	3.000	0.000
Congressional Add Totals for all Projects	3.000	0.000

Change Summary Explanation

FY16 Decrease: Congressional mark of \$2.0M - Unjustified growth in Program Management Administration.

C. Accomplishments/Planned Programs (\$ in Millions)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: NextGen ATS	3.341	5.188	5.020	-	5.020
<p>Description: Includes efforts to implement NextGen ATS efficiencies and capabilities. Focus is on Automatic Dependent Surveillance Broadcast (ADS-B) implementation, seamlessly integrating Remotely Piloted Aircraft (RPA) into civil airspace, Instrument Procedure Development System (IPDS) software development, Lead Service Office technical support/architecture development, development of aircraft performance based navigation avionics roadmaps, and surveillance radar/automation system upgrades.</p>					
<p>FY 2015 Accomplishments:</p> <ul style="list-style-type: none"> - Developed a working copy of the Strategic Roadmap and Integrated Master Schedule (IMS). - Began effort to define Global Aviation Initiatives, Mandates, and Standards (GAIMS) requirements. - Began effort to develop Fleet-Wide Avionics Repository (F-WAR) requirements database. - Assessed and determined candidate Embedded Global Positioning System/Inertial (EGI) avionics compliance as an ADS-B Out position source for the E-3 Airborne Warning and Control System aircraft. - Completed ADS-B interoperability testbed allowing end-to-end ADS-B implementation and evaluation. - Continued IPDS development/software module testing. - Coordinated with the state of Ohio and Air Force Research Laboratory to implement RPA GBSAA capability in Springfield, OH, and Grand Forks AFB, ND. - Validated GBSAA as a tool for collision avoidance at Cannon AFB. - Conducted detailed reviews/updates of Federal Aviation Regulations to enable RPA integration into civil airspace (in support of RPA Aviation Rule Making Committee). 					
<p>FY 2016 Plans:</p> <ul style="list-style-type: none"> - Continue development of NextGen ATS DoD Strategic Roadmap and IMS by executing analysis on 2-3 Performance Based Navigation (PBN) perspectives and capture results through charters. The PBN IMS and charters will be used as pathfinders for future areas of analysis. 					

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0305114F / <i>Air Traffic Control, Approach, and Landing System (ATCALs)</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<ul style="list-style-type: none"> - Continue to develop implementation schedules and establish priorities for NextGen ATS aircraft and ground system capabilities and incorporate into F-WAR, GAIMS, Strategic Roadmap, and IMS. -- GAIMS focus is on combining military Mode-5 Identification Friend or Foe (IFF), Global Positioning System (GPS) Military (M) Code, and civil ADS-B avionics upgrades. - Continue assessment of DoD GPS avionics and IFF transponders. - Begin to develop solutions to integrate DataComm equipage into DoD fleet, advance electronic flight bag applications and standardization, and analyze impacts to DoD of FAA radar divestiture plans. - Continue IPDS software testing, and certification. - Continue to coordinate with interagency partners to promote RPA integration. - Continue to support requests for implementation of GBSAA at new locations. - Begin preparation of engineering change proposal to integrate Mode-5 IFF and secure comm into D-RAPCON surveillance radar and automation system. <p>FY 2017 Base Plans:</p> <ul style="list-style-type: none"> - Will continue to execute analysis of NextGen ATS programs and capture results through charters and incorporate into NextGen ATS DoD Strategic Roadmap and IMS. Inputs will continue to include results of the following tasks: -- Development of implementation schedules and establishment of priorities for NextGen ATS aircraft and ground system capabilities and incorporation into F-WAR and GAIMS. -- Development of solutions to integrate Data Comm and electronic flight bag applications into DoD fleets -- Analysis/documentation of impacts to DoD of FAA radar divestiture plans. - Will refine D-RAPCON Mode 5 and secure comm integration/architecture and concept of operation and carry lessons learned over into fixed-base air traffic control facilities that use the same underlying radar and automation system as D-RAPCON. - Will continue ADS-B out end-to-end interoperability of assessment of DoD GPS avionics and IFF transponders. - Will continue to coordinate with interagency partners to promote RPA integration. - Will continue to support requests for implementation of GBSAA at new locations. - Will explore operational concepts and conduct operational utility evaluation (OUE) for remote virtual Air Traffic Control Tower capability. -- The OUE will assess if technology can reduce manpower requirements and need for traditional "brick and mortar" control tower buildings without impacting flight operations tempo and flight safety. 					
Title: D-RAPCON	18.968	14.204	4.750	-	4.750

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0305114F / <i>Air Traffic Control, Approach, and Landing System (ATCALs)</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
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Description: Effort supports D-RAPCON engineering, manufacturing, and development effort and government developmental and operational testing of one Pre-Production Unit (PPU) leading to a production decision in FY17.

- FY 2015 Accomplishments:**
- Completed integration of the Pre-Production Unit (PPU).
 - Reviewed/approved contractor test plans and conducted Test Readiness Review.
 - Participated in contractor conducted system testing throughout FY15.
 - Prepared for DT and Federal Aviation Administration certifications efforts.

- FY 2016 Plans:**
- Complete contractor testing and begin conduct of DT and deficiency mitigation work as necessary.
 - Obtain frequency allocation and authority to radiate approvals.
 - Continue preparation of documentation to obtain six separate certifications required for entry into FRP:
 - Air Traffic Control Radar Beacon System, Identification Friend or Foe, Mark XII/Mark XIIA Systems Certification.
 - National Air Space Certification.
 - Shelter/Transportability Certification.
 - Electro-Magnetic Spectrum Certification.
 - Information Assurance Certification.
 - Accreditation and Interoperability and Supportability Certification.

- FY 2017 Base Plans:**
- Will complete DT.
 - Will obtain MS C decision & approval for production representative unit.
 - Will complete OT.
 - Will complete system certifications required prior to full rate. production decision:
 - Air Traffic Control Radar Beacon System, Identification Friend or Foe, Mark XII/Mark XIIA Systems Certification.
 - National Airspace System Certification.
 - Shelter/Transportability Certification.
 - Electro-Magnetic Spectrum Certification.
 - Information Assurance Certification.

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>Description: Effort supports D-RAPCON engineering, manufacturing, and development effort and government developmental and operational testing of one Pre-Production Unit (PPU) leading to a production decision in FY17.</p> <p>FY 2015 Accomplishments:</p> <ul style="list-style-type: none"> - Completed integration of the Pre-Production Unit (PPU). - Reviewed/approved contractor test plans and conducted Test Readiness Review. - Participated in contractor conducted system testing throughout FY15. - Prepared for DT and Federal Aviation Administration certifications efforts. <p>FY 2016 Plans:</p> <ul style="list-style-type: none"> - Complete contractor testing and begin conduct of DT and deficiency mitigation work as necessary. - Obtain frequency allocation and authority to radiate approvals. - Continue preparation of documentation to obtain six separate certifications required for entry into FRP: <ul style="list-style-type: none"> -- Air Traffic Control Radar Beacon System, Identification Friend or Foe, Mark XII/Mark XIIA Systems Certification. -- National Air Space Certification. -- Shelter/Transportability Certification. -- Electro-Magnetic Spectrum Certification. -- Information Assurance Certification. -- Accreditation and Interoperability and Supportability Certification. <p>FY 2017 Base Plans:</p> <ul style="list-style-type: none"> - Will complete DT. - Will obtain MS C decision & approval for production representative unit. - Will complete OT. - Will complete system certifications required prior to full rate. production decision: <ul style="list-style-type: none"> -- Air Traffic Control Radar Beacon System, Identification Friend or Foe, Mark XII/Mark XIIA Systems Certification. -- National Airspace System Certification. -- Shelter/Transportability Certification. -- Electro-Magnetic Spectrum Certification. -- Information Assurance Certification. 					

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0305114F / <i>Air Traffic Control, Approach, and Landing System (ATCALs)</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
-- Accreditation and Interoperability and Supportability Certification.					
Accomplishments/Planned Programs Subtotals	22.309	19.392	9.770	-	9.770

	FY 2015	FY 2016
Congressional Add: Ground Based Sense and Avoid (GBSAA)	3.000	0.000
FY 2015 Accomplishments: - Continued development and procurement of a transportable GBSAA system for the ANG. - Purchased 3 dimensional radar and hardware systems through existing Army contracts. - Developed architecture for transportable GBSAA for ANG to include integration with Ground Control Station and existing air traffic control radar. - Initiated development and procurement of GBSAA system for Global Hawk at Beale AFB, CA.		
FY 2016 Plans: - With FY15 funds, continue development of a transportable GBSAA system for the ANG. -- Tasks include test and evaluation of a pre-production system, integration of a satellite communication capability, and pursuit of FAA approval for operations. - Continue development and procurement of GBSAA system for RPA operations at Beale AFB, CA. -- Tasks include analysis of operations, creation of documentation for FAA safety case, finalization of architecture, procurement of hardware, test and evaluation, and pursuit of FAA approval for operations.		
Congressional Adds Subtotals	3.000	0.000

D. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• OPAF: BA03: Line Item # 833010: <i>Air Traffic Control and Landing Systems</i>	23.912	28.823	55.803	46.870	102.673	62.739	59.049	56.533	47.198	Continuing	Continuing
• OPAF: BA 05: Line Item # 861900: <i>Spares and Repair Parts</i>	5.987	2.775	4.964	0.000	4.964	4.705	2.093	2.430	4.622	Continuing	Continuing

Remarks

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force Date: February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0305114F / <i>Air Traffic Control, Approach, and Landing System (ATCALs)</i>
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E. Acquisition Strategy

ATCALs is a basket program element with multiple programs in various stages of acquisition which provide the air traffic control infrastructure to support peacetime and wartime missions. The current acquisition strategy is focused on replacing 1960/70s era deployable and fixed based equipment with mature off-the-shelf technology with remote maintenance capability while also looking to the future under the NextGen ATS initiative.

Current contracting efforts include D-RAPCON development and GBSAA/NextGen ATS planning/implementation. The contracting strategy for D-RAPCON development is based on award of a competitive fixed price incentive firm contract emphasizing off-the-shelf technology and maximizing the use of non-developmental items. The contract includes engineering, manufacturing, and development and test with follow-on production options. GBSAA and NextGen ATS Enterprise Architecture Implementation Tasks are being executed via Military Inter-Departmental Purchase Requests, and Project Orders with various organizations (FAA, MITRE, Army, AFRL, and Air Force Flight Standards Agency).

The Air Force Program Executive Officer (PEO) for Battlefield Management (BM) is the PEO for ATCALs. PEO/BM is also the delegated milestone decision authority for ATCALs. Under PEO/BM is the Air Force Life Cycle Management Center Airspace Management Systems Division (AFLCMC/HBA) which includes program management, contracts, legal, and financial management support.

F. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305114F / Air Traffic Control, Approach, and Landing System (ATCALs)	Project (Number/Name) 673587 / Air Traffic Control Systems
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
NextGen ATS Instrument Procedure Development System (IPDS)	MIPR	FAA : Washington, DC	-	1.397	Mar 2015	1.000	Apr 2016	0.000		0.000		0.000	0.000	2.397	4.207
GBSAA ANG	MIPR	Army : Various, MA	-	0.700	Nov 2015	0.000		0.000		0.000		0.000	Continuing	Continuing	-
GBSAA Beale	MIPR	Various : Various	-	2.300	Nov 2015	0.000		0.000		0.000		0.000	0.000	2.300	-
D-RAPCON	C/FPIF	Raytheon : Marlborough, MA	-	12.615	Nov 2014	6.789	Nov 2015	1.713	Nov 2016	0.000		1.713	0.000	21.117	54.980
Subtotal			-	17.012		7.789		1.713		0.000		1.713	-	-	-

Remarks
 IPDS and D-RAPCON total cost and target value of contract differ as target value of contract includes prior years costs and the total cost only includes FY15-FY17. Total cost with prior years does not differ from the contract target value.
 Current GBSAA ANG funding completes a non-transportable system.

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
NextGen ATS LSO/JPO Enterprise Architecture Implementation Support	MIPR	FAA : Washington, DC	-	1.320	Apr 2015	2.220	Apr 2016	2.273	Apr 2017	0.000		2.273	Continuing	Continuing	-
NextGen ATS AFFSA Strategic Planning	WR	MITRE : Hanscom AFB, MA	-	0.307	Jan 2015	0.307	Jan 2016	0.307	Jan 2017	0.000		0.307	Continuing	Continuing	-
NextGen ATS Support Cost	WR	Various : Various	-	0.212	Dec 2014	0.899	Dec 2015	0.000		0.000		0.000	Continuing	Continuing	-
NextGen ATS GBSAA Support	MIPR	Various : Various	-	0.100	Apr 2015	0.200	May 2016	0.150	Apr 2017	0.000		0.150	Continuing	Continuing	-
D-RAPCON Support Cost	MIPR	Various : Various	-	0.772	Oct 2014	0.779	Oct 2015	0.740	Oct 2016	0.000		0.740	Continuing	Continuing	-
Subtotal			-	2.711		4.405		3.470		0.000		3.470	-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305114F / Air Traffic Control, Approach, and Landing System (ATCALs)	Project (Number/Name) 673587 / Air Traffic Control Systems
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Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			

Remarks
Various contract types, performing activity and city/states are result of the use of Military Interdepartmental Purchase Requests, Purchase Requests, Project Orders, etc that are sent to multiple agencies in support of some tasks.

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
NextGen ATS Surveillance Radar/Automation System Upgrades	WR	Various : Various	-	0.000		0.562	Feb 2016	1.520	Nov 2016	0.000		1.520	Continuing	Continuing	-
Remote Virtual Air Traffic Control Tower Capability OUE	WR	Various : Various	-	0.000		0.000		0.767	Apr 2017	0.000		0.767	Continuing	Continuing	-
D-RAPCON	WR	Various : Various	-	0.689	Mar 2015	1.316	Nov 2015	0.000		0.000		0.000	Continuing	Continuing	-
Subtotal			-	0.689		1.878		2.287		0.000		2.287	-	-	-

Remarks
Various contract types, performing activity and city/states are result of the use of Military Interdepartmental Purchase Requests, Purchase Requests, Project Orders, etc that are sent to multiple agencies in support of some tasks.

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Management Administration (PMA) - D-RAPCON	WR	Various : Bedford, MA	-	4.897	Oct 2014	5.320	Oct 2015	2.300	Oct 2016	0.000		2.300	Continuing	Continuing	-
Subtotal			-	4.897		5.320		2.300		0.000		2.300	-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force							Date: February 2016			
Appropriation/Budget Activity 3600 / 7			R-1 Program Element (Number/Name) PE 0305114F / <i>Air Traffic Control, Approach, and Landing System (ATCALs)</i>				Project (Number/Name) 673587 / <i>Air Traffic Control Systems</i>			
	Prior Years	FY 2015	FY 2016		FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	25.309	19.392		9.770	0.000	9.770	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force

Date: February 2016

Appropriation/Budget Activity

3600 / 7

R-1 Program Element (Number/Name)

PE 0305114F / Air Traffic Control, Approach, and Landing System (ATCALs)

Project (Number/Name)

673587 / Air Traffic Control Systems

FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

NextGen ATS GBSAA Syracuse/ANG Implementation	████████████████																							
NextGen ATS GBSAA Syracuse/ANG CA - Jun 15			██																					
NextGen ATS GBSAA Syracuse/ANG Test					██																			
NextGen ATS GBSAA Syracuse/ANG Cert					██████																			
NextGen ATS GBSAA Syracuse/ANG Non Transportable IOC - Sep 16									██															
NextGen ATS GBSAA Beale CA - Dec 15					██																			
NextGen ATS GBSAA Beale Design					██████																			
NextGen ATS GBSAA Beale Install/Flight Test									████████															
NextGen ATS GBSAA Beale IOC - Mar 17											██													
NextGen ATS IMS and Strategic Roadmap Development	████████████████																							
NextGen ATS IMS and Strategic Roadmap Implementation									██															
NextGen ATS GAIMS Development	████████████████																							
NextGen ATC GAIMS Implementation									██															
NextGen ATS F-WAR Development	██																							
NextGenn ATS F-WAR Implementation													██											
Electronic Fligth Bag Applications Development and Standardization					██																			
Aircraft Data Comm Integration Analysis and Solutions					██																			
FAA Radar Divesture Impacts and Solutions					██																			

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305114F / Air Traffic Control, Approach, and Landing System (ATCALs)	Project (Number/Name) 673587 / Air Traffic Control Systems

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
NextGen ATS GBSAA Syracuse/ANG Implementation	1	2015	4	2016
NextGen ATS GBSAA Syracuse/ANG CA - Jun 15	3	2015	3	2015
NextGen ATS GBSAA Syracuse/ANG Test	1	2016	1	2016
NextGen ATS GBSAA Syracuse/ANG Cert	1	2016	2	2016
NextGen ATS GBSAA Syracuse/ANG Non Transportable IOC - Sep 16	4	2016	4	2016
NextGen ATS GBSAA Beale CA - Dec 15	1	2016	1	2016
NextGen ATS GBSAA Beale Design	1	2016	2	2016
NextGen ATS GBSAA Beale Install/Flight Test	3	2016	1	2017
NextGen ATS GBSAA Beale IOC - Mar 17	2	2017	2	2017
NextGen ATS IMS and Strategic Roadmap Development	1	2015	4	2016
NextGen ATS IMS and Strategic Roadmap Implementation	1	2017	4	2021
NextGen ATS GAIMS Development	1	2015	4	2016
NextGen ATC GAIMS Implementation	1	2017	4	2021
NextGen ATS F-WAR Development	1	2015	4	2017
NextGen ATS F-WAR Implementation	1	2018	4	2021
Electronic Flight Bag Applications Development and Standardization	1	2016	4	2018
Aircraft Data Comm Integration Analysis and Solutions	1	2016	4	2019
FAA Radar Divesture Impacts and Solutions	1	2016	4	2019
NextGen ATS EGI/ADS-B Avionics Position Source Validation	1	2015	4	2019
NextGen ATS GBSAA Future Location Planning/Coordination	1	2015	4	2017
NextGen ATS Instrument Procedure Development System (IPDS) Software Dev	1	2015	3	2015
NextGen ATS IPDS Test/Certification	3	2015	1	2017

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305114F / <i>Air Traffic Control, Approach, and Landing System (ATCALs)</i>	Project (Number/Name) 673587 / <i>Air Traffic Control Systems</i>
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Events	Start		End	
	Quarter	Year	Quarter	Year
NextGen ATS Surveillance Radar and Automation System Upgrade/ D-RAPCON Mode 5 IFF/Secure Comm Integration	2	2016	4	2020
Remote Virtual Air Traffic Control Tower Capability OUE	2	2017	4	2018
D-RAPCON CT	1	2015	4	2016
D-RAPCON System Certifications	4	2015	4	2017
D-RAPCON DT	4	2016	2	2017
D-RAPCON DR/Mitigation	2	2017	3	2017
D-RAPCON MS C - Mar 17	2	2017	2	2017
D-RAPCON Production Representative Option - Mar 17	2	2017	2	2017
D-RAPCON OT	3	2017	4	2017
D-RAPCON OT Quick Look Report - Aug 17	4	2017	4	2017
D-RAPCON Production Decision - Sep 17	4	2017	4	2017
D-RAPCON Production	4	2017	4	2021
D-RAPCON IOC - Apr 19	3	2019	3	2019

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0305116F / <i>Aerial Targets</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	-	8.537	2.515	3.051	0.000	3.051	2.334	1.446	1.505	1.532	Continuing	Continuing
675136: <i>Target Systems Development</i>	-	3.828	0.842	1.915	0.000	1.915	1.914	1.446	1.505	1.532	Continuing	Continuing
675366: <i>QF-16</i>	-	4.709	1.673	1.136	0.000	1.136	0.420	0.000	0.000	0.000	0.000	7.938

A. Mission Description and Budget Item Justification

Full-scale and subscale Aerial Targets assure warfighter's weapon systems will perform effectively against real-world enemy fighters and cruise missiles. Aerial Targets provide adherence to Public Law Title 10, Section 2366 "Live Fire/Lethality" developmental/operational test requirements. Targets are used to validate operational missile/weapon system effectiveness and fighter Operational Flight Program (OFP) updates. Targets are essential for development testing/operational testing for all air-to-air and surface-to-air missiles, and for the F-22A, F-35, F-18, F-16, and F-15, aircraft. The objective is to provide realistic targets for missile testing to enable the development of offensive counter-air systems (air-to-air and surface-to-air) capable of defeating changing enemy airborne threats. 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 to include but not limited to missile scoring, electronic attack, electronic countermeasures and infrared (IR) countermeasures, radar and IR signature augmentation, and chaff and flare dispensing systems.

This program is in budget activity 7 - Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	8.639	2.515	3.081	0.000	3.081
Current President's Budget	8.537	2.515	3.051	0.000	3.051
Total Adjustments	-0.102	0.000	-0.030	0.000	-0.030
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-0.102	0.000			
• Other Adjustments	0.000	0.000	-0.030	0.000	-0.030

Change Summary Explanation

No Significant Program Changes

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force										Date: February 2016		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0305116F / <i>Aerial Targets</i>				Project (Number/Name) 675136 / <i>Target Systems Development</i>			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
675136: <i>Target Systems Development</i>	-	3.828	0.842	1.915	0.000	1.915	1.914	1.446	1.505	1.532	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Full-scale aerial targets, subscale aerial targets, and companion Target Control Systems (TCS) assure the effectiveness and currency of warfighter weapon systems to combat real-world enemy fighters and cruise missiles. The BQM-167A Air Force Subscale Aerial Target (AFSAT) is a reusable jet-powered target 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. Funding supports continued improvement of launch phase performance and overall performance enhancement efforts. Funding supports development, improvements, and updates of target control systems and specialized target payload subsystems for requirements to include but not limited to missile scoring, electronic attack and infrared (IR) countermeasures, radar and IR signature augmentation, and chaff and flare dispensing systems.

Electronic Attack (EA) pod upgrade provides new techniques and capabilities critical to subscales and full-scales to realistically emulate foreign threat systems in support of weapons testing.

TCS provides a myriad of sub-systems that together delivers the capability to control and track mission aerial targets (full-scale and subscale) and to track a mix of other critical mission participants (to include relay platforms, shooters, and the missile system under test). In this role, TCS ensures an optimum integrated aerial target environment that enhances both weapon system assessments and companion aircrew skills, all the while assuring the full safety of mission participants throughout the conduct and fulfillment of T&E objectives. Funding supports continued improvement (modernization) of TCS capabilities to effectively meet the multi-service T&E demands of current and future warfighter weapon systems.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: BQM-167A Development	0.000	0.049	0.049	0.000	0.049
Description: Provide enhancements to the radar cross section and infrared signature with accompanying test and integration. Begin development activities for an alternate launch system.					
FY 2015 Accomplishments: N/A					
FY 2016 Plans:					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305116F / <i>Aerial Targets</i>	Project (Number/Name) 675136 / <i>Target Systems Development</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>Continue BQM-167A improvement efforts. Conduct research and analysis on potential affordable, subscale aerial target platform concepts and support user requirements generation.</p> <p>FY 2017 Base Plans: Continue BQM-167A improvement efforts. Conduct research and analysis on potential affordable, subscale aerial target platform concepts, support user requirements generation for alternate launch capabilities to the current AFSAT platform and improve target endurance.</p> <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: Target Control System</p> <p>Description: Provide system modernization enhancements to Target Control System Gulf Range Drone Control System, (GRDCS) for command and control and tracking of Aerial Targets.</p> <p>FY 2015 Accomplishments: Continued system modernization enhancements to Target Control System for command and control, tracking of Aerial Targets, Utah Test and Training Range (UTTR) Upgrade, and Loss of Carrier (LOC) Waypoint.</p> <p>FY 2016 Plans: Continue system modernization enhancements to include but not limited to Target Control System for command and control, tracking of Aerial Targets, UTTR Upgrade, and LOC Waypoint.</p> <p>FY 2017 Base Plans: Continue system modernization enhancements to include but not limited to Gulf Range Drone Control System (GRDCS) software updates to support QF-16 FOC at Holloman AF Base and future TCS architecture assessments.</p> <p>FY 2017 OCO Plans: N/A</p>	2.531	0.259	1.178	0.000	1.178
<p>Title: Digital Radio Frequency Memory (DRFM)</p> <p>Description: Upgrade existing and develop new electronic attack (EA) pod hardware and software used on QF-4, QF-16, and subscales to emulate evolving adversary EA tactics and techniques.</p> <p>FY 2015 Accomplishments:</p>	1.297	0.534	0.688	0.000	0.688

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305116F / <i>Aerial Targets</i>	Project (Number/Name) 675136 / <i>Target Systems Development</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Continued efforts to upgrade existing and develop new EA pod hardware and software used on QF-4, QF-16, and subscales to emulate evolving adversary EA tactics and techniques.					
<i>FY 2016 Plans:</i> Continue efforts to upgrade existing and develop new EA pod hardware and software used on QF-4, QF-16, and subscales to emulate evolving adversary EA tactics and techniques.					
<i>FY 2017 Base Plans:</i> Continue efforts to upgrade existing and develop new EA pod hardware and software used on QF-16 and subscales to emulate evolving adversary EA tactics and techniques.					
<i>FY 2017 OCO Plans:</i> N/A					
Accomplishments/Planned Programs Subtotals	3.828	0.842	1.915	0.000	1.915

C. Other Program Funding Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• APAF:BA04: Line Item # 10TRGT: <i>Target Drones</i>	81.995	131.879	114.656	0.000	114.656	151.195	136.724	132.164	134.579	Continuing	Continuing
• APAF: BA06: Line Item # 000999: <i>Initial Spares/Repair Parts</i>	0.000	0.537	0.595	0.000	0.595	0.595	0.584	0.594	0.606	Continuing	Continuing
• APAF: BA07: Line Item # 000074: <i>War Consumables</i>	11.012	4.427	4.460	0.000	4.460	4.553	4.636	4.717	4.804	Continuing	Continuing
• APAF: BA07: Line Item # 000075: <i>Other Production Charges</i>	21.307	7.969	19.345	0.000	19.345	13.158	11.767	11.938	12.158	Continuing	Continuing
• OPAF: BA03: Line Item # 834190: <i>Combat Training Ranges</i>	3.054	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	-

Remarks

D. Acquisition Strategy

The AFSAT acquisition strategy is sole source follow-on with fixed price and time and materials contracts. The Target Control System acquisition strategy includes several small projects to provide enhancements to Target Control System (to include GRDCS) and will be accomplished with other government agencies and contracts as needed. EA Pods acquisition strategy includes several small projects managed by the US Navy program office to provide enhancements to the target payloads for subscale and full-scale targets.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305116F / <i>Aerial Targets</i>	Project (Number/Name) 675136 / <i>Target Systems Development</i>

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305116F / <i>Aerial Targets</i>	Project (Number/Name) 675136 / <i>Target Systems Development</i>
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Air Force Subscale Aerial Target (AFSAT) Product Improvements	SS/FFP	NAWC : Pt Mugu, CA	-	0.000		0.049	Jan 2016	0.049	Jan 2017	0.000		0.049	Continuing	Continuing	-
Target Control System	Various	Various : TBD	-	2.087	Jan 2015	0.243	Jan 2016	1.161	Jan 2017	0.000		1.161	Continuing	Continuing	-
Digital Radio Frequency Memory (DRFM)	Various	Various : Pt Mugu, CA	-	1.297	Jan 2015	0.534	Jan 2016	0.688	Jan 2017	0.000		0.688	Continuing	Continuing	-
Subtotal			-	3.384		0.826		1.898		0.000		1.898	-	-	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Target Control System Program Management Administration (PMA)	Various	Various : Eglin AFB, FL	-	0.444		0.016		0.017		0.000		0.017	Continuing	Continuing	-
Subtotal			-	0.444		0.016		0.017		0.000		0.017	-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305116F / <i>Aerial Targets</i>	Project (Number/Name) 675136 / <i>Target Systems Development</i>
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	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	3.828	0.842	1.915	0.000	1.915	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305116F / <i>Aerial Targets</i>	Project (Number/Name) 675136 / <i>Target Systems Development</i>
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	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
BQM-167A: Alternate Launch Activity																												
BQM-167A: APC-4 Pod Enhancement																												
BQM-167A: Digital Architecture																												
TCS: Modernization																												
TCS: Utah Test and Training Range (UTTR) Upgrade																												
TCS: Loss of Carrier (LOC) Waypoint																												
TCS: Advanced Command Destruct Systems (ACDS) Development																												
TCS: GRDCS Software Version 61																												
TCS: Architecture Assessments																												
EA Pods-Multi Channel Digital Radio Frequency Memory (DRFM) Hardware																												
EA Pods-Multi Channel Digital Radio Frequency Memory (DRFM) Software Spiral Upgrade																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305116F / <i>Aerial Targets</i>	Project (Number/Name) 675136 / <i>Target Systems Development</i>
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
BQM-167A: Alternate Launch Activity	3	2017	4	2021
BQM-167A: APC-4 Pod Enhancement	3	2018	4	2020
BQM-167A: Digital Architecture	3	2019	4	2021
TCS: Modernization	1	2015	4	2021
TCS: Utah Test and Training Range (UTTR) Upgrade	1	2015	2	2016
TCS: Loss of Carrier (LOC) Waypoint	1	2015	2	2016
TCS: Advanced Command Destruct Systems (ACDS) Development	1	2015	3	2015
TCS: GRDCS Software Version 61	4	2016	2	2017
TCS: Architecture Assessments	3	2016	4	2018
EA Pods-Multi Channel Digital Radio Frequency Memory (DRFM) Hardware	1	2015	1	2016
EA Pods-Multi Channel Digital Radio Frequency Memory (DRFM) Software Spiral Upgrade	1	2016	2	2019

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force										Date: February 2016		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0305116F / <i>Aerial Targets</i>				Project (Number/Name) 675366 / <i>QF-16</i>			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
675366: <i>QF-16</i>	-	4.709	1.673	1.136	0.000	1.136	0.420	0.000	0.000	0.000	0.000	7.938
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Full-scale Aerial Targets assure warfighters weapon systems 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 targets to satisfy "Live Fire/Lethality" developmental/operational test requirements. Targets are used to validate operational missile/weapon system effectiveness and fighter operational flight program (OFP) updates. Targets are required for developmental/operational testing for all air-to-air and surface-to-air missiles, and for the F-22A, F-35, F-18, F-16, and F-15, aircraft. 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 will fulfill this requirement. Funding supports continued development of the follow-on full-scale aerial target (QF-16) and simulators, 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. Development is required to evolve QF-16 threat capabilities to meet current and future threats identified by OSD.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: QF-16 Development Program	4.709	1.673	1.136	0.000	1.136
Description: QF-16 Development Program					
FY 2015 Accomplishments: Continued threat realism improvements to radar cross section (RCS) reduction. Conducted studies and analysis for Future F-16 Block Studies and Development.					
FY 2016 Plans: Continue threat realism improvements. Conduct studies and analysis, including Future F-16 Block Studies and Development .					
FY 2017 Base Plans: Continue threat realism improvements to include but not limited to radar cross section (RCS) reduction and improved countermeasures. Conduct studies and analysis, including Future F-16 Block Studies and Development .					
FY 2017 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	4.709	1.673	1.136	0.000	1.136

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305116F / <i>Aerial Targets</i>	Project (Number/Name) 675366 / <i>QF-16</i>

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

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u>			<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To</u>	
			<u>Base</u>	<u>OCO</u>	<u>Total</u>					<u>Complete</u>	<u>Total Cost</u>
• APAF: BA 04: Line Item # 10TRGT: <i>Target Drones</i>	81.995	131.879	114.656	0.000	114.656	151.195	136.724	132.164	134.579	Continuing	Continuing
• APAF: BA 06: Line Item # 000999: <i>Initial Spares/Repair Parts</i>	0.000	0.537	0.595	0.000	0.595	0.595	0.584	0.594	0.606	Continuing	Continuing
• APAF: BA 07: Line Item # 000074: <i>War Consumables</i>	11.012	4.427	4.460	0.000	4.460	4.553	4.636	4.717	4.804	Continuing	Continuing
• APAF: BA 07: Line Item # 000075: <i>Other Production Charges</i>	21.307	7.969	19.345	0.000	19.345	13.158	11.767	11.938	12.158	Continuing	Continuing
• OPAF: BA 03: Line Item # 834190: <i>Combat Training Ranges</i>	3.054	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	-

Remarks

D. Acquisition Strategy

The QF-16 was a competitive contract award, including fixed price incentive development contract with fixed priced production options (Lots 1-5). Planning is in progress to award sole source follow-on production and sustainment contract to incumbent for Lots 6-10 in FY18.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305116F / <i>Aerial Targets</i>	Project (Number/Name) 675366 / QF-16
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Drone Peculiar Equipment	C/Various	The Boeing Company : Saint Louis, MO	-	4.709	Mar 2015	1.673	Dec 2015	1.136	Mar 2017	0.000		1.136	Continuing	Continuing	-
Subtotal			-	4.709		1.673		1.136		0.000		1.136	-	-	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

			Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	4.709	1.673	1.136	0.000	1.136	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305116F / <i>Aerial Targets</i>	Project (Number/Name) 675366 / <i>QF-16</i>
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	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Threat Realism Improvements																												
Electronic Flight Termination System / Loss of Carrier																												
Future F-16 Block Studies and Development																												
Radar Cross Section Model Development																												
Radar Cross Section Reduction (Phase 1)																												
Radar Cross Section Reduction (Phase 2)																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305116F / <i>Aerial Targets</i>	Project (Number/Name) 675366 / <i>QF-16</i>
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Threat Realism Improvements	3	2017	3	2019
Electronic Flight Termination System / Loss of Carrier	1	2015	4	2017
Future F-16 Block Studies and Development	4	2015	3	2018
Radar Cross Section Model Development	4	2015	3	2016
Radar Cross Section Reduction (Phase 1)	3	2017	4	2018
Radar Cross Section Reduction (Phase 2)	3	2018	2	2019

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0305128F / <i>Security and Investigative Activities</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	-	0.000	0.472	0.405	0.000	0.405	0.414	0.421	0.428	0.436	0.000	2.576
671931: <i>TECH SURVEIL COUNTER MEAS EQPT</i>	-	0.000	0.472	0.405	0.000	0.405	0.414	0.421	0.428	0.436	0.000	2.576
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

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 this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0305128F / <i>Security and Investigative Activities</i>
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B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	0.000	0.472	0.409	0.000	0.409
Current President's Budget	0.000	0.472	0.405	0.000	0.405
Total Adjustments	0.000	0.000	-0.004	0.000	-0.004
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	-0.004	0.000	-0.004

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
Title: TSCM	0.000	0.472	0.405
Description: Next Generation Technical Surveillance Countermeasures (TSCM) receiver. TSCM detects, deters and neutralizes traditional and emerging technical collection efforts of foreign intelligence entities and insider threats while identifying physical security vulnerabilities in sensitive information processing facilities. Developments in technologies provide for increased frequency spectrum and information network awareness and advanced automated analytical tools in a man-portable form factor. Additionally, the potential increased speed and resolution reduces man hours and time on target resulting in inherent efficiencies as related to human and capital resources.			
FY 2015 Accomplishments: N/A			
FY 2016 Plans: Continue development of Next Generation Technical Surveillance Countermeasures (TSCM) receiver. FY16 activities (based on FY15 results)will transition into more robust activities to identify, develop and test and evaluate receivers against state-of-the-art commercial and state-sponsored technical collection tools and capabilities. Evaluation and acceptance testing will facilitate the objective and technical evaluation towards meeting validated requirements prior to full-rate acquisition.			
FY 2017 Plans: Further research and develop tools to exploit cyberspace, digital media and mobile devices for the collection of evidence and counterintelligence information and methods of neutralizing threats from intrusions and insider threats.			
Accomplishments/Planned Programs Subtotals	0.000	0.472	0.405

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0305128F / <i>Security and Investigative Activities</i>	
D. Other Program Funding Summary (\$ in Millions) N/A		
Remarks		
E. Acquisition Strategy Market Research is accomplished jointly within the DoD, Counterintelligence, and Law Enforcement communities with the various government laboratories and major 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. Market Research also allows inter-agency coordination and deconfliction to occur, reducing or eliminating duplicitous development efforts. Annually, stakeholders meet to discuss initiatives, challenges and organizational goals to coordinate or consolidate requirements to increase efficiency. Once Market Research and any applicable coordination/deconfliction is completed, acquisition channels are analyzed and selected based on the ability to meet operational and technical security requirements.		
F. Performance Metrics Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305128F / Security and Investigative Activities	Project (Number/Name) 671931 / TECH SURVEIL COUNTER MEAS EQPT
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
TSCM R/D #4	MIPR	HQ AFOSI : Quantico, VA	-	0.000	Dec 2015	0.472	Dec 2015	0.405	Dec 2016	0.000		0.405	Continuing	Continuing	TBD
Subtotal			-	0.000		0.472		0.405		0.000		0.405	-	-	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

			Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	0.000	0.472	0.405	0.000	0.405	-	-	-

Remarks
 Funds support AFOSI RDTE at the intelligence community's Interagency Test and Evaluation Lab at a secure location to identify, research, develop, test, and evaluate classified and unclassified technical surveillance and countermeasures solutions to emerging operational

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305128F / <i>Security and Investigative Activities</i>	Project (Number/Name) 671931 / <i>TECH SURVEIL COUNTER MEAS EQPT</i>
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	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
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requirements in support of AFOSI services to protect Air Force and DoD resources.

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305128F / <i>Security and Investigative Activities</i>	Project (Number/Name) 671931 / <i>TECH SURVEIL COUNTER MEAS EQPT</i>

	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Technical Surveillance Equipment Test & Evaluation	██████████																											
Complete Phase I TSCM LASER Receiver R&D Project w/Naval Research Lab (NRL)	██████████																											
Begin Phase II RDT&E Project (MIPR to NRL)					██████████																							
Technical Surveillance Equipment Test & Evaluation (1)					██████████																							
Continue Phase II TSCM LASER Project									██████████																			
Technical Surveillance Equipment Test & Evaluation (2)									██████████																			
Transition from Phase II TSCM LASER Project to Phase III													██████████															
Technical Surveillance Equipment Test & Evaluation (3)													██████████															
Complete Phase III (Final) TSCM LASER Project																	██████████											
Technical Surveillance Equipment Test & Evaluation (4)																					██████████							
Technical Surveillance Equipment Test & Evaluation (5)																									██████████			

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305128F / <i>Security and Investigative Activities</i>	Project (Number/Name) 671931 / <i>TECH SURVEIL COUNTER MEAS EQPT</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Technical Surveillance Equipment Test & Evaluation	1	2015	4	2015
Complete Phase I TSCM LASER Receiver R&D Project w/Naval Research Lab (NRL)	1	2015	4	2015
Begin Phase II RDT&E Project (MIPR to NRL)	1	2016	4	2016
Technical Surveillance Equipment Test & Evaluation (1)	1	2016	4	2016
Continue Phase II TSCM LASER Project	1	2017	4	2017
Technical Surveillance Equipment Test & Evaluation (2)	1	2017	4	2017
Transition from Phase II TSCM LASER Project to Phase III	1	2018	4	2018
Technical Surveillance Equipment Test & Evaluation (3)	1	2018	4	2018
Complete Phase III (Final) TSCM LASER Project	1	2019	4	2019
Technical Surveillance Equipment Test & Evaluation (4)	1	2020	4	2020
Technical Surveillance Equipment Test & Evaluation (5)	1	2021	4	2021

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0305145F / <i>Arms Control Implementation</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	-	13.222	9.137	4.844	0.000	4.844	0.000	0.000	0.000	0.000	0.000	27.203
675063: <i>Digital Visual Imaging System (DVIS)</i>	-	13.222	9.137	4.844	0.000	4.844	0.000	0.000	0.000	0.000	0.000	27.203
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

The OC-135B aircraft supports the implementation of the United States Government (USG) Open Skies Treaty. This program addresses the requirements in the Presidential Policy Directive-15 (PPD-15). The Open Skies Treaty allows signatories to conduct observation flights over each other's territory using fixed-wing, unarmed observation aircraft. The aircraft can use optical cameras, video cameras, sideways-looking synthetic aperture radar, and infrared line scanning devices. There are 34 participating states to the Open Skies Treaty. The Air Force is required to allow over flight of USAF bases per multilateral request; to acquire, operate, and maintain the aircraft and equipment utilized during over flights of partner countries; to provide required sensor media and initial media processing; and to provide airfield servicing, logistics, and maintenance for foreign over flights of the US.

Open Skies Sensors - Mission equipment on the OC-135B includes wet film optical framing and panoramic cameras. Open Skies Sensors program addresses the requirements in the Presidential Policy Directive-15 (PPD-15), which states, "The United States shall begin budgeting no later than FY14 to upgrade the sensors on the current aircraft by replacing film-based cameras with available electro-optical sensors. (U)" Additionally, current cameras are nearly obsolete, unreliable, hard and increasingly expensive to maintain, and repair parts must be individually manufactured. In addition, the web film manufacturers are discontinuing production of the film stock. Furthermore, the ultimate imagery product customer desires digital format products. This camera replacement program will replace the wet film cameras with modern, digital cameras. Modern, digital cameras will be more reliable, maintainable and cost effective. The customer will be able to more readily use the imagery products. Equipment service life will be extended significantly.

Test articles will be procured for the purpose of developmental testing and to support Treaty certification of the sensors.

This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0305145F / <i>Arms Control Implementation</i>
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B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	13.222	12.137	4.892	0.000	4.892
Current President's Budget	13.222	9.137	4.844	0.000	4.844
Total Adjustments	0.000	-3.000	-0.048	0.000	-0.048
• Congressional General Reductions	0.000	-3.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	-0.048	0.000	-0.048

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
Title: OC-135 Open Skies Sensors	13.222	9.137	4.844
Description: Replace existing Open Skies aircraft wet film sensors with digital sensors.			
FY 2015 Accomplishments: Conduct research supporting design and intergration of the new digital cameras.			
FY 2016 Plans: Procure and install (quantity of 1) RDT&E article as prototype sensor system.			
FY 2017 Plans: Test and Treaty Certify prototype sensor system.			
Accomplishments/Planned Programs Subtotals	13.222	9.137	4.844

D. Other Program Funding Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• APAF:BA05: Line Item #1900: <i>Digital Visual Imaging System (DVIS)</i>	0.000	0.000	0.000	0.000	0.000	15.079	0.893	5.162	5.257	0.000	26.391

Remarks

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0305145F / <i>Arms Control Implementation</i>
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E. Acquisition Strategy
The acquisition strategy is to acquire, develop, test, purchase, and install DVIS update the Open Skies Medial Processing Facility (OSMPF) through full and open competition. The contracting strategy is for a single integrator through development, test, production, and installation.

F. Performance Metrics
Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force												Date: February 2016			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
3600 / 7				PE 0305145F / Arms Control Implementation				675063 / Digital Visual Imaging System (DVIS)							
Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Open Skies Sensors Engineering, Development and Prototype Subtotal Product Development	C/FFP	Various : Various	-	12.288	Feb 2016	8.148	May 2016	1.952	Apr 2017	0.000		1.952	Continuing	Continuing	22.388
Subtotal			-	12.288		8.148		1.952		0.000		1.952	-	-	22.388
Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Sub Total Support	Various	Various : Various	-	0.900	Aug 2015	0.500	Aug 2016	0.734	Aug 2017	0.000		0.734	Continuing	Continuing	3.545
Subtotal			-	0.900		0.500		0.734		0.000		0.734	-	-	3.545
Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Open Skies Sensor development ground and flight testing for imagery collection	PO	Various : Various	-	0.000		0.440	Apr 2016	2.108	Apr 2017	0.000		2.108	Continuing	Continuing	2.548
Subtotal			-	0.000		0.440		2.108		0.000		2.108	-	-	2.548
Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Open Skies Sensors PMA SubTotal Management Services	Various	Various : Various	-	0.034	Sep 2015	0.049	Sep 2016	0.050	Sep 2017	0.000		0.050	Continuing	Continuing	0.152
Subtotal			-	0.034		0.049		0.050		0.000		0.050	-	-	0.152

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force								Date: February 2016			
Appropriation/Budget Activity 3600 / 7			R-1 Program Element (Number/Name) PE 0305145F / Arms Control Implementation				Project (Number/Name) 675063 / Digital Visual Imaging System (DVIS)				
	Prior Years	FY 2015	FY 2016		FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract	
Project Cost Totals	-	13.222	9.137		4.844	0.000	4.844	-	-	28.633	

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305145F / Arms Control Implementation	Project (Number/Name) 675063 / Digital Visual Imaging System (DVIS)

	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Milestone B					■																							
Contract Award					■																							
Critical Design Review									■																			
Test/Certification													■															
Milestone C																									■			
Initial Operational Capability																	■											
Final Operational Capability																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305145F / Arms Control Implementation	Project (Number/Name) 675063 / Digital Visual Imaging System (DVIS)

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Milestone B	2	2016	2	2016
Contract Award	2	2016	2	2016
Critical Design Review	1	2017	1	2017
Test/Certification	4	2017	3	2018
Milestone C	4	2018	4	2018
Initial Operational Capability	3	2018	3	2018
Final Operational Capability	4	2019	4	2019

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0305146F / <i>Defense Joint Counterintelligence Activities</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	-	0.040	0.361	0.339	0.000	0.339	0.366	0.373	0.380	0.387	Continuing	Continuing
671931: <i>TECH SURVEIL COUNTER MEAS EQPT</i>	-	0.040	0.361	0.339	0.000	0.339	0.366	0.373	0.380	0.387	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Technical Surveillance Countermeasures (TSCM) develops future technologies capable of thwarting advanced, hostile force technical capabilities. The technologies will provide secure environments for austere mission planning locations and theater commander centers, and will collect information for counterthreat operations in support of DoD and AF requirements.

This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

B. Program Change Summary (\$ in Millions)

	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>
Previous President's Budget	0.040	0.361	0.362	0.000	0.362
Current President's Budget	0.040	0.361	0.339	0.000	0.339
Total Adjustments	0.000	0.000	-0.023	0.000	-0.023
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	-0.023	0.000	-0.023

C. Accomplishments/Planned Programs (\$ in Millions)

	FY 2015	FY 2016	FY 2017
Title: Defense Joint Counterintelligence Program	0.040	0.361	0.339
Description: TSCM will develop future technologies capable of thwarting advanced, hostile force technical capabilities. They will be developed to provide secure environments to austere mission planning locations, theater commander centers, and will collect information for counterthreat operations in support of DoD and AF requirements.			

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0305146F / <i>Defense Joint Counterintelligence Activities</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
<p><i>FY 2015 Accomplishments:</i> Continued to develop the Next Generation Technical Surveillance Countermeasures (TSCM).</p> <p><i>FY 2016 Plans:</i> Continue research and development of advanced systems to provide support to counterthreat operations and other austere and contingency areas as needed.</p> <p><i>FY 2017 Plans:</i> Continue research and development of advanced systems to provide support to counterthreat operations and other austere and contingency areas as needed.</p>			
Accomplishments/Planned Programs Subtotals	0.040	0.361	0.339

D. Other Program Funding Summary (\$ in Millions)
N/A

Remarks

E. Acquisition Strategy
Contracts will be awarded based on full and open competition.

F. Performance Metrics
Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force												Date: February 2016				
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)								
3600 / 7				PE 0305146F / Defense Joint Counterintelligence Activities				671931 / TECH SURVEIL COUNTER MEAS EQPT								
Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Naval Research Lab	MIPR	Navy/Air Force : Williamsburg, VA	-	0.040	Dec 2015	0.361	Dec 2016	0.339	Dec 2017	0.000		0.339	Continuing	Continuing	-	
Subtotal			-	0.040		0.361		0.339		0.000		0.339	-	-	-	
Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Subtotal			-	-		-		-		-		-	-	-	-	
Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Subtotal			-	-		-		-		-		-	-	-	-	
Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Subtotal			-	-		-		-		-		-	-	-	-	
Project Cost Totals			-	0.040		0.361		0.339		0.000		0.339	-	-	-	
Remarks																

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305146F / <i>Defense Joint Counterintelligence Activities</i>	Project (Number/Name) 671931 / <i>TECH SURVEIL COUNTER MEAS EQPT</i>

FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

TSCM activity.

[REDACTED]																											
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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305146F / <i>Defense Joint Counterintelligence Activities</i>	Project (Number/Name) 671931 / <i>TECH SURVEIL COUNTER MEAS EQPT</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
TSCM activity.	1	2015	3	2020

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0305173F / <i>Space and Missile Test and Evaluation Center</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	-	3.490	3.152	3.989	0.000	3.989	3.955	3.821	3.891	3.960	Continuing	Continuing
67A014: <i>R&D Space and Missile Operations</i>	-	3.490	3.152	3.989	0.000	3.989	3.955	3.821	3.891	3.960	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Research and Development Space and Missile Operations (RDSMO) program, executed by the Advanced Systems and Development Directorate at Kirtland AFB, NM, conducts space and missile Research and Developmental Test and Evaluation (RDT&E) and Initial Operational Test and Evaluation (IOT&E) in support of experimental, demonstration, and operational satellites. The program develops, acquires, and operates satellite command and control (C2) and fixed/deployable telemetry, tracking, and commanding (TT&C) antenna systems in support of AF and DoD missions. The RDSMO program is responsible for the design, development, integration, testing, sustainment, and operations of the Multi-Mission Satellite Operations Center (MMSOC) C2 systems installed in the RDT&E Support Complex (RSC) at Kirtland AFB, NM and at the Satellite Operations Center 11 (SOC 11) located at Schriever AFB, CO.

FY17 funds include incremental development and establishment of new capabilities for the MMSOC, systems engineering, special studies, integration and test efforts in support of demonstrations and operational architectures designed to increase operations and maintenance affordability, efficiency and resiliency for global satellite command and control through military and commercial capabilities.

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 warfighter support. MMSOC is a multiple mission operation system that uses standard software to (1) perform satellite command and control (C2) in support of launch requirements; (2) develop and test tactics, techniques, procedures and concepts to conduct satellite operations; (3) provide a satellite C2 incremental block evolution resource for RDT&E of new systems and concepts; and (4) deliver operational flexibility for new and currently flying assigned satellites. A secondary objective of MMSOC is to provide a foundational C2 platform and product line for the Enterprise Ground Services (EGS) effort to build upon.

In FY17, this Program Element supports EGS. EGS is performing technology maturation, experiments and prototyping for increased commonality and resiliency in space program ground systems.

This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0305173F / <i>Space and Missile Test and Evaluation Center</i>
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B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	3.674	3.162	4.028	0.000	4.028
Current President's Budget	3.490	3.152	3.989	0.000	3.989
Total Adjustments	-0.184	-0.010	-0.039	0.000	-0.039
• Congressional General Reductions	0.000	-0.010			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-0.184	0.000			
• Other Adjustments	0.000	0.000	-0.039	0.000	-0.039
 Change Summary Explanation					
FY15 -\$.184M SBIR					
FY16 -\$.010M FFRDC FY16 Mark					
FY17 -\$.039M Inflation Rates for Non-Pay/Non-Fuel					

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
<p>Title: MMSOC Development</p> <p>Description: Multi-Mission Satellite Operations Center (MMSOC) development/integration/test.</p> <p>FY 2015 Accomplishments: Provided capability to AFSPC for reduced cost of operations through use of MMSOC architecture. Continued to support operations of multiple satellites and enhance automation capability. Continued program office support and related support activities such as, but not limited to, mission support, special studies, Systems Engineering and Technical Assistance (SETA), Federally Funded Research and Development Centers (FFRDC), etc.</p> <p>FY 2016 Plans: Continue providing capability to AFSPC for reduced cost of operations and maintenance through evolution of MMSOC architecture and automated processes. Refine and continue to support operations of multiple satellites and enhance automation capability. Continue program office support and related support activities such as, but not limited to, mission support, special studies, Systems Engineering and Technical Assistance (SETA), Federally Funded Research and Development Centers (FFRDC), etc.</p> <p>FY 2017 Plans:</p>	3.490	3.152	3.589

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force		Date: February 2016		
Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>		R-1 Program Element (Number/Name) PE 0305173F / <i>Space and Missile Test and Evaluation Center</i>		
C. Accomplishments/Planned Programs (\$ in Millions)		FY 2015	FY 2016	FY 2017
Continue providing capability to AFSPC for reduced cost of operations and maintenance through evolution of MMSOC architecture and automated processes, which will support the objectives of the Enterprise Ground Services (EGS). Refine and continue to support operations of multiple satellites and enhance automation capability. Continue program office support and related support activities such as, but not limited to, mission support, special studies, Systems Engineering and Technical Assistance (SETA), Federally Funded Research and Development Centers (FFRDC), etc.				
Title: Enterprise Ground Services (EGS)		0.000	0.000	0.400
Description: Enterprise Ground Services (EGS) is envisioned to provide a robust enterprise ground architecture for Air Force space systems, which leverages mission commonality and automation to reduce sustainment costs and re-focus manpower on warfighting capabilities. In addition, EGS will enable a near-real-time common operating picture of enterprise-wide tactical health, status, indications, and warnings for Air Force satellites. The end-state will be a modern technical infrastructure which is cyber-secure and resilient against the Advanced Persistent Threat and employs streamlined architecting, acquisition, and operational processes. Through early architecture studies and prototyping, the government will establish clear ownership of the technical baseline to meet Better Buying Power principles as the EGS effort evolves through development. This effort provides focus and expertise for the development, test, certification and enforcement of standards and interfaces for all AFSPC satellite ground systems to enable transition planning for legacy ground systems, new capability demonstrations, and systems acquisition leading to an enterprise ground architecture for Air Force space systems.				
FY 2015 Accomplishments: N/A				
FY 2016 Plans: N/A				
FY 2017 Plans: Conduct developmental planning, mature technologies, and develop initial small-scale prototype capability for the enterprise ground architecture. Efforts in 2017 will include, but are not limited to, systems engineering, special studies, cybersecurity planning and implementation, standards and interface development and codification, integration and test efforts in support of demonstrations, and operational architecture planning. In addition, this effort will build the technical and programmatic roadmap to enable a phased enterprise transition in the future.				
Accomplishments/Planned Programs Subtotals		3.490	3.152	3.989

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0305173F / <i>Space and Missile Test and Evaluation Center</i>
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D. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u> <u>Base</u>	<u>FY 2017</u> <u>OCO</u>	<u>FY 2017</u> <u>Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• RDTE:BA07 PE0305173F: <i>General Information Technology</i>	1.683	1.435	1.977	0.000	1.977	1.947	1.858	1.890	1.925	-	-

Remarks

E. Acquisition Strategy

The Air Force uses the competitively awarded Engineering, Development, and Sustainment (EDS) Contract, managed by Space and Missile System Center, Advanced Systems and Development Directorate, to modernize and sustain MMSOC.

F. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305173F / <i>Space and Missile Test and Evaluation Center</i>	Project (Number/Name) 67A014 / <i>R&D Space and Missile Operations</i>
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Engineering, Development, and Sustainment (EDS) Follow-on Contract (MMSOC)	C/CPAF	Lockheed Martin : Santa Maria, CA	-	1.529	Oct 2014	1.162	Oct 2015	1.239	Oct 2016	0.000		1.239	Continuing	Continuing	TBD
Naval Research Lab	MIPR	Naval Research Lab : Washington, DC	-	0.546	Oct 2014	0.450	Oct 2015	0.600	Oct 2016	0.000		0.600	Continuing	Continuing	TBD
Service Bus Architecture Standards	MIPR	NASA Goddard : Greenbelt, MD	-	0.025	Oct 2014	0.050	Oct 2015	0.050	Oct 2016	0.000		0.050	Continuing	Continuing	TBD
Information Assurance (MMSOC)	Various	Various : TBD	-	0.300	Oct 2014	0.300	Oct 2015	0.300	Oct 2016	0.000		0.300	Continuing	Continuing	TBD
Enterprise Ground Services (EGS)	Various	Various : TBD	-	0.000		0.000		0.400	Jan 2017	0.000		0.400	Continuing	Continuing	TBD
Subtotal			-	2.400		1.962		2.589		0.000		2.589	-	-	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
System Test and Engineering Contract (STEC) (MMSOC)	C/CPAF	LINQUEST : Kirtland, AFB, NM	-	0.540	Oct 2014	0.300	Oct 2015	0.500	Oct 2016	0.000		0.500	Continuing	Continuing	TBD
Subtotal			-	0.540		0.300		0.500		0.000		0.500	-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305173F / <i>Space and Missile Test and Evaluation Center</i>	Project (Number/Name) 67A014 / <i>R&D Space and Missile Operations</i>
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Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total		Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost				
A&AS	Various	Various : TBD	-	0.550	Oct 2014	0.890	Oct 2015	0.900	Oct 2016	0.000		0.900	Continuing	Continuing	TBD	
Subtotal			-	0.550		0.890		0.900		0.000		0.900	-	-	-	
Project Cost Totals			-	3.490		3.152		3.989		0.000		3.989	-	-	-	

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305173F / <i>Space and Missile Test and Evaluation Center</i>	Project (Number/Name) 67A014 / <i>R&D Space and Missile Operations</i>

	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
RDSMO Systems Upgrades	[Redacted]																											
MMSOC Block II	[Redacted]																											
MMSOC Information Assurance	[Redacted]																											
MMSOC STP-2 Supt (Customer Funded)	[Redacted]																											
MMSOC ORS-1 Supt (Customer Funded)	[Redacted]																											
MMSOC C/NOFS Supt (Customer Funded)	[Redacted]																											
MMSOC CloudSat Supt (Customer Funded)	[Redacted]																											
MMSOC STPSat-3 Supt (Customer Funded)	[Redacted]																											
MMSOC SENSE Supt (Customer Funded)	[Redacted]																											
MMSOC ANGELS Supt (Customer Funded)	[Redacted]																											
MMSOC EAGLE Supt (Customer Funded)	[Redacted]																											
MMSOC GPIM Supt (Customer Funded)	[Redacted]																											
MMSOC DSX Supt (Customer Funded)	[Redacted]																											
MMSOC Msn Supt (Customer Funded)	[Redacted]																											
MMSOC ORS-5 Supt (Customer Funded)	[Redacted]																											
AFSCN Support (Customer Funded)	[Redacted]																											

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305173F / <i>Space and Missile Test and Evaluation Center</i>	Project (Number/Name) 67A014 / <i>R&D Space and Missile Operations</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
RDSMO Systems Upgrades	1	2015	4	2021
MMSOC Block II	1	2015	4	2021
MMSOC Information Assurance	1	2015	4	2021
MMSOC STP-2 Supt (Customer Funded)	1	2015	1	2016
MMSOC ORS-1 Supt (Customer Funded)	1	2015	4	2019
MMSOC C/NOFS Supt (Customer Funded)	1	2015	3	2015
MMSOC CloudSat Supt (Customer Funded)	1	2015	4	2020
MMSOC STPSat-3 Supt (Customer Funded)	1	2015	4	2017
MMSOC SENSE Supt (Customer Funded)	1	2015	3	2015
MMSOC ANGELS Supt (Customer Funded)	1	2015	4	2015
MMSOC EAGLE Supt (Customer Funded)	1	2015	4	2019
MMSOC GPIM Supt (Customer Funded)	1	2015	4	2018
MMSOC DSX Supt (Customer Funded)	1	2015	4	2018
MMSOC Msn Supt (Customer Funded)	1	2015	4	2021
MMSOC ORS-5 Supt (Customer Funded)	1	2015	4	2021
AFSCN Support (Customer Funded)	1	2015	4	2021

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0305174F / <i>Space Innovation, Integration and Rapid Technology Development</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	-	1.999	1.543	3.070	4.715	7.785	2.957	2.623	2.673	2.721	Continuing	Continuing
67A011: <i>Space Analysis and Application Development</i>	-	1.999	1.543	3.070	4.715	7.785	2.957	2.623	2.673	2.721	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Located at Peterson AFB, Colorado, the Space Innovation, Integration and Rapid Technology Development program 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. 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.

This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

B. Program Change Summary (\$ in Millions)	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>
Previous President's Budget	2.071	1.543	3.129	0.000	3.129
Current President's Budget	1.999	1.543	3.070	4.715	7.785
Total Adjustments	-0.072	0.000	-0.059	4.715	4.656
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-0.072	0.000			
• Other Adjustments	0.000	0.000	-0.059	4.715	4.656

C. Accomplishments/Planned Programs (\$ in Millions)

	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>
Title: Model/Tool Development and Capability Upgrades	0.994	0.741	1.502	4.715	6.217

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0305174F / <i>Space Innovation, Integration and Rapid Technology Development</i>	

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>Description: Develops, verifies, and validates new models for space mission areas and modifies existing models to portray new capabilities. Models used by the Air Force Space Command's (AFSPC) Space Analysis Center for military utility analyses, trade studies, and other evaluations of space programs supporting program offices at the Space and Missile Center, HQ AFSPC and other activities with a space focus. Develop and modify several models and tools in support of space and cyber analysis, including, but not limited to the following: Space Surveillance Network Analysis Model (SSNAM), System Effectiveness Analysis Simulation (SEAS), System CONOPS and Requirements Environment (SCORE), Simulation of Locations and Attack of Mobile Enemy Missiles (SLAMEM), Scintillation Error Model (SCINTERR), Extended Air Defense Simulation (EADSIM), and Synthetic Theatre Operations Research Model (STORM).</p> <p>Develops changes in fielded and projected space operational capabilities, as well as technical improvements, into software tools to ensure their data and technology remain current.</p> <p>FY 2015 Accomplishments: Developed and modified several models and tools in support of space and cyber analysis.</p> <p>SSNAM - Produced 180 days of simulated data on 100,000 satellites to support JMS testing and validation.</p> <p>SEAS - Updated tool to support Warfighter Vignette Analysis efforts providing AFSPC leadership insights into the impact of space and cyberspace capabilities on military operations. Used extensively in SBIRS FO AoA for a plethora of analyses.</p> <p>EADISM, NSS, TRADIX - Upgrades/modifications supported analysis of OPIR for Missile Warning mission in SBIRS FO AoA.</p> <p>SYSTRAK, MPS - Upgrades/modifications supported analysis of OPIR for Space Situational Awareness mission in SBIRS FO AoA.</p> <p>R3 - Upgrades/modifications supported analysis of OPIR for Battlespace Awareness mission in SBIRS FO AoA.</p> <p>FY 2016 Plans: Develop and modify several models and tools in support of space and cyber analysis. Continue building on FY 2015 activities.</p>					

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0305174F / <i>Space Innovation, Integration and Rapid Technology Development</i>
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C. Accomplishments/Planned Programs (\$ in Millions)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
SSNAM - Continue support to JMS and support analysis for changes to the Space Surveillance Network.					
STORM - Improve space/cyber representation in STORM. Enhance STORM non-lethal effects modeling.					
SEAS - Improve space/cyber representation in STORM. Enhance STORM non-lethal effects modeling.					
SCORE - Upgrade to support Cyber/ISR studies and ITW/AA analysis.					
Other model modifications as needed based on leadership questions.					
FY 2017 Base Plans: Develop and modify several models and tools in support of space and cyber analysis. Continue building on FY 2016 activities.					
SCORE - Upgrades to support Cyber/ISR studies and ITW/AA analysis.					
SSNAM - Continue support to JMS and analysis and studies of the Space Surveillance Network.					
SEAS - Improve space/cyber representation enabling simulation of joint military force interactions utilizing these capabilities.					
STORM - Improve space/cyber representation in STORM. Enhance STORM non-lethal effects modeling.					
Other model modifications as needed based on leadership questions.					
FY 2017 OCO Plans: Jamming and Intercept Advance Notice Tool (JIANT): Develops defensive counterspace software tools to provide operational security/mission protection capabilities to counter near-peer investments in ground-based jammers/overhead collection assets. Provides enhanced overhead protection capability which can perform link-budget calculations to improve efficacy of collection					

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0305174F / <i>Space Innovation, Integration and Rapid Technology Development</i>
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C. Accomplishments/Planned Programs (\$ in Millions)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>vulnerability warnings to deployed troops and SATCOM centric capabilities. Provides timely analysis necessary to expedite countermeasures to enemy jamming activities.</p> <p>Tiny-Tattle: Modifies software on Low Probability of Intercept/ Detection (LPI/LPD)small Size Weight and Power (SWaP)Target, Tracking and Locating (TTL) devices used via AFSPC Space/Cyber-associated tools/assets supporting Joint/SOF National Mission Force. Project exploits the investment made in other Space Command developments and provides a TTL device that works world-wide without dependencies on other platforms. Upgrades will provide increased situational awareness and assist in reducing fratricide.</p> <p>Fly Swatter: Develops prototype sensor to detect small UAVs (commercial class) via AFSPC Space/Cyber-associated tools/assets supporting Joint/SOF National Mission Force that are used by insurgents. Provides engineering level testing of prototype sensors against a range of commercially available drones capable of ISR activities or delivery of Improvised Explosive Devices. Focus on small, short range drones with Line-of-Sight communications or programed delivery.</p> <p>RADAGAST-RED: Research, development and integration of purpose built, cyber based tool(s) to remotely influence and manipulate otherwise inaccessible cyberspace systems via AFSPC Space/Cyber-associated tools/assets supporting Joint/SOF National Mission Force. Impacts adversary kill chain use in targeting, to enhance USAF expeditionary force survivability.</p> <p>Sinon Green: Research, development and integration of a tactical cyber tool designed to aid in personnel recovery via AFSPC Space/Cyber-associated tools/assets supporting Joint/SOF National Mission Force. Low-cost product with high-impact return. Enhances the survivability and availability for recovery of isolated personnel.</p> <p>Ravanna Blue: Development and integration of non-kinetic cyberspace tools designed to provide access, delivery, and persistence within complex and diverse networks. Targets medium-altitude long-endurance UAVs via AFSPC</p>					

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0305174F / <i>Space Innovation, Integration and Rapid Technology Development</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Space/Cyber-associated tools/assets supporting Joint/SOF National Mission Force. Scalable to other unique missions and targets.					
Title: Model Verification Description: Verification of changes made to models. FY 2015 Accomplishments: Verified model changes resulting from Model Development and Modification efforts. FY 2016 Plans: Verification of model changes resulting from Model Development and modification efforts. FY 2017 Base Plans: Verification of model changes resulting from Model Development and modification efforts.	0.435	0.324	0.657	-	0.657
Title: Model Validation Description: Validated model change results. FY 2015 Accomplishments: Validated model changes resulting from Model Development and Modification efforts. FY 2016 Plans: Validation of model changes resulting from Model Development and Modification efforts. FY 2017 Base Plans: Validation of model changes resulting from Model Development and Modification efforts.	0.570	0.478	0.911	-	0.911
Accomplishments/Planned Programs Subtotals	1.999	1.543	3.070	4.715	7.785

D. Other Program Funding Summary (\$ in Millions)						Cost To					
<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Complete</u>	<u>Total Cost</u>
• OPAF: BA03: Line Item # 834010: <i>General Information Technology</i>	1.289	1.221	1.481	0.000	1.481	0.709	0.617	0.627	0.639	Continuing	Continuing

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0305174F / <i>Space Innovation, Integration and Rapid Technology Development</i>
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D. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u> <u>Base</u>	<u>FY 2017</u> <u>OCO</u>	<u>FY 2017</u> <u>Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
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Remarks

Funding and content procures equipment for the SIIRTD AFSPC Virtual Analysis Capability (AVAC) system. Supports space and cyber modeling and analysis using a variety of Linux and Windows based hardware and software suites.

E. Acquisition Strategy

Any new projects funded in this program will be awarded using competitive procedures to the maximum extent possible.

F. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force												Date: February 2016			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)					Project (Number/Name)						
3600 / 7				PE 0305174F / Space Innovation, Integration and Rapid Technology Development					67A011 / Space Analysis and Application Development						
Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Develop/modify software tools/models OCO	C/Various	Various : Various	-	0.000		0.000		0.000		4.715		4.715	Continuing	Continuing	TBD
Develop/modify software tools/models	C/FP	Various : Various	-	0.808	Nov 2014	0.602	Nov 2015	1.220	Nov 2016	0.000		1.220	Continuing	Continuing	TBD
Develop/modify software tools and models	C/FP	Various : Various	-	1.191	Nov 2014	0.941	Nov 2015	1.850	Jan 2016	0.000		1.850	Continuing	Continuing	TBD
Subtotal			-	1.999		1.543		3.070		4.715		7.785	-	-	-
Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			-	-		-		-		-		-	-	-	-
Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			-	-		-		-		-		-	-	-	-
Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			-	-		-		-		-		-	-	-	-
Project Cost Totals			-	1.999		1.543		3.070		4.715		7.785	-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force							Date: February 2016			
Appropriation/Budget Activity 3600 / 7			R-1 Program Element (Number/Name) PE 0305174F / <i>Space Innovation, Integration and Rapid Technology Development</i>			Project (Number/Name) 67A011 / <i>Space Analysis and Application Development</i>				

	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
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Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305174F / <i>Space Innovation, Integration and Rapid Technology Development</i>	Project (Number/Name) 67A011 / <i>Space Analysis and Application Development</i>

	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Model development/modification, verification, and validation																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305174F / <i>Space Innovation, Integration and Rapid Technology Development</i>	Project (Number/Name) 67A011 / <i>Space Analysis and Application Development</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Model development/modification, verification, and validation	1	2015	4	2021

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0305179F / <i>Integrated Broadcast Service (IBS)</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	-	8.592	7.860	8.833	0.000	8.833	8.722	8.629	8.790	8.946	Continuing	Continuing
674779: <i>Integrated Broadcast Service</i>	-	8.592	7.860	8.833	0.000	8.833	8.722	8.629	8.790	8.946	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Integrated Broadcast Service (IBS) fulfills the warfighter's requirements for worldwide threat warning and situational awareness information with timely production and simultaneous dissemination of Intelligence, Surveillance, and Reconnaissance (ISR) derived combat information. It also provides target tracking data to support threat avoidance, targeting, force protection, and situational awareness. This information is continually refined in near real time by strategic, operational and tactical sensors.

IBS is comprised of the following:

- A Common Interactive Broadcast (CIB) on UHF satellite channel using a Common Message Format (CMF) and a MIL-STD Demand Assigned Multiple Access (DAMA) compliant waveform and Line of Sight (LOS) using the Wideband Networking Waveform (WNW) and Joint Tactical Terminal (JTT).
- IBS-Network Services (IBS-NS) includes two Global IBS Network Servers (GINS) and four Theater Interface Nodes (TINs) to support the geographic Combatant Commanders, all built to validated warfighter requirements.
- Two GINS receive data from each theater and integrate this data into a worldwide picture available to all network/broadcast users.
- Four regional TINs allow local and out-of-theater users (not directly receiving IBS broadcast) to receive the CIB information broadcast. Additionally, the TIN will receive and inject data into the CIB for producers without access to the theater CIB.

This PE funds:

- Modernization of IBS (IBS-NS, CIB, and CMF)

This project will identify and implement an open, scalable system architecture that will accommodate growth as the virtual world grows and cyber operations change.

This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0305179F / <i>Integrated Broadcast Service (IBS)</i>
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B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	8.592	7.860	8.921	0.000	8.921
Current President's Budget	8.592	7.860	8.833	0.000	8.833
Total Adjustments	0.000	0.000	-0.088	0.000	-0.088
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	-0.088	0.000	-0.088

Change Summary Explanation

- FY17: \$88K "Inflation rate reduction for Non-pay/non-fuel".

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
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<p>Title: Modernization of Integrated Broadcast Service (IBS-NS, CIB, and CMF)</p> <p>Description: Modernizes IBS (IBS-NS, CIB, and CMF).</p> <p>FY 2015 Accomplishments:</p> <ul style="list-style-type: none"> - Initiated enabling SCI-level dissemination of data - Initiated providing IBS Enterprise-level real-time and analytic views on Global and COCOM watch floors - Initiated providing resilience to IBS CIB UHF Broadcast by utilizing the Mobile User Objective System (MUOS) Wideband Code Division Multiple Access (WCDMA) SATCOM payload and supporting the receipt of IBS on 1st generation MUOS terminals - Initiated connecting the COCOM J2 CIB planning function with the COCOM J6 Integrated Waveform planning function - Continued providing P5 system health and welfare status at the COCOMs - Continued integrating CMF updates into IBS-NS <p>FY 2016 Plans:</p> <ul style="list-style-type: none"> - Initiate development of the IBS ISR Cloud Interface which provides a long term searchable data store for IBS information 	7.102	6.370	7.343
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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0305179F / <i>Integrated Broadcast Service (IBS)</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
<ul style="list-style-type: none"> - Continue providing IBS Enterprise-level real-time and analytic views on Global and COCOM watch floors - Initiate providing performance enhancement to throughput, storage and replay to address increased volume of messages for IBS-NS as well as Over the Air (OTA) capabilities - Continue providing resilience to IBS CIB UHF Broadcast by utilizing the Mobile User Objective System (MUOS) Wideband Code Division Multiple Access (WCDMA) SATCOM payload and supporting the receipt of IBS on 1st generation MUOS terminals - Continue connecting the COCOM J2 CIB planning function with the COCOM J6 Integrated Waveform planning function - Initiate integration of the CIB Planning Tool and IBS-NS capability at the COCOMs to allow automated planning to occur for active producers - Continue providing P5 system health and welfare status at the COCOMs - Initiate transition of current classified dissemination path to new architecture - Initiate enhancement of uplink sites to handle operational surge increases - Initiate modifying monitoring and control tools to assist in assured dissemination tasks at COCOM uplink watches, development and fielding of Downlink Monitoring Element (DME) - Continue integrating CMF updates into IBS-NS <p>FY 2017 Plans:</p> <ul style="list-style-type: none"> - Will continue development of the IBS ISR Cloud Interface which provides a long term searchable data store for IBS information - Will continue providing IBS Enterprise-level real-time and analytic views on Global and COCOM watch floors - Will continue providing performance enhancement to throughput, storage and replay to address increased volume of messages - Will continue providing resilience to IBS CIB UHF Broadcast by utilizing the Mobile User Objective System (MUOS) Wideband Code Division Multiple Access (WCDMA) SATCOM payload and supporting the receipt of IBS on 1st generation MUOS terminals 			

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force		Date: February 2016		
Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>		R-1 Program Element (Number/Name) PE 0305179F / <i>Integrated Broadcast Service (IBS)</i>		
C. Accomplishments/Planned Programs (\$ in Millions)		FY 2015	FY 2016	FY 2017
<ul style="list-style-type: none"> - Will continue integration of the CIB Planning Tool and IBS-NS capability at the COCOMs to allow automated planning to occur for active producers - Will initiate development of the IBS Thin Client, which provides a light weight application to receive IBS information on mobile devices - Will initiate development of the CIB MUOS Group Integration - Many to Many, which achieves IBS Over the Air requirements on the MUOS Wideband Code Division Multiple Access (WCDMA) payload. - Will continue providing P5 system health and welfare status at the COCOMs - Will continue transition of current classified dissemination path to new architecture - Will continue enhancement of uplink sites to handle operational surge increases - Will continue modifying monitoring and control tools to assist in assured dissemination tasks at COCOM uplink watches, development and fielding of Downlink Monitoring Element (DME) - Will continue integration of CMF Updates into IBS-NS 				
<p>Title: Enterprise Systems Engineering</p> <p>Description: Enterprise Systems Engineering/CMF Integration/CIB Integration.</p> <p>FY 2015 Accomplishments:</p> <ul style="list-style-type: none"> - Continued Enterprise Systems Engineering/CMF Integration/CIB Integration <p>FY 2016 Plans:</p> <ul style="list-style-type: none"> - Continuing Enterprise Systems Engineering/CMF Integration/CIB Integration <p>FY 2017 Plans:</p> <ul style="list-style-type: none"> - Will continue Enterprise Systems Engineering/CMF Integration/CIB Integration 		0.700	0.700	0.700
<p>Title: Test & Evaluation</p> <p>Description: Tests & Evaluates the IBS system.</p>		0.790	0.790	0.790

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0305179F / <i>Integrated Broadcast Service (IBS)</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
<i>FY 2015 Accomplishments:</i> - Tested and evaluated the IBS system <i>FY 2016 Plans:</i> - Testing and evaluating the IBS system <i>FY 2017 Plans:</i> - Will test and evaluate the IBS system			
Accomplishments/Planned Programs Subtotals	8.592	7.860	8.833

D. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u> <u>Base</u>	<u>FY 2017</u> <u>OCO</u>	<u>FY 2017</u> <u>Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• OPAF: BA03: Line Item # 832070: <i>Intelligence Comm Equipment</i>	14.949	11.411	16.452	0.000	16.452	17.120	16.419	16.709	17.010	Continuing	Continuing

Remarks

E. Acquisition Strategy

IBS uses an Adaptive Life-cycle approach that provides incremental improvement and new capability in 90-day cycles.

For contracting efforts, a Single Award IDIQ contract with multiple task orders was awarded to L-3 National Security Solutions.

F. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force												Date: February 2016			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
3600 / 7				PE 0305179F / Integrated Broadcast Service (IBS)				674779 / Integrated Broadcast Service							
Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
IBS (IBS-NS, CIB, and CMF) Modernization	Various	L-3 National Security Systems/L-3 Comm, IS/Other Government Agency : Various	-	6.942	Oct 2014	6.210	Oct 2015	7.183	Oct 2016	0.000		7.183	Continuing	Continuing	TBD
Subtotal			-	6.942		6.210		7.183		0.000		7.183	-	-	-
Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			-	-		-		-		-		-	-	-	-
Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Interoperability and Development Testing	MIPR	JITC : Ft Huachuca, AZ	-	0.500	Oct 2014	0.500	Oct 2015	0.500	Oct 2016	0.000		0.500	Continuing	Continuing	TBD
Responsible Test Organization (RTO)	PO	46th Test Squadron : Eglin AFB, FL	-	0.290	Oct 2014	0.290	Oct 2015	0.290	Oct 2016	0.000		0.290	Continuing	Continuing	TBD
Subtotal			-	0.790		0.790		0.790		0.000		0.790	-	-	-
Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management/ Engineering Support	C/FFP	Creedence : Warner Robins, GA	-	0.160	Apr 2015	0.160	Nov 2015	0.160	Nov 2016	0.000		0.160	Continuing	Continuing	TBD
Enterprise Engineering/ CMF Integration/CIB Integration	SS/CPFF	L3 Comm, IS : Greenville, TX	-	0.700	Jan 2015	0.700	Jan 2016	0.700	Jan 2017	0.000		0.700	Continuing	Continuing	TBD

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force											Date: February 2016			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0305179F / <i>Integrated Broadcast Service (IBS)</i>					Project (Number/Name) 674779 / <i>Integrated Broadcast Service</i>			

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			-	0.860		0.860		0.860		0.000		0.860		-	-	-
Project Cost Totals			-	8.592		7.860		8.833		0.000		8.833		-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305179F / <i>Integrated Broadcast Service (IBS)</i>	Project (Number/Name) 674779 / <i>Integrated Broadcast Service</i>

	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
IBS-NS Acquisition Strategy Plan (ASP) for Follow On Contract				■																								
IBS-NS Follow On Contract Award								■																				
IBS (IBS-NS, CIB, and CMF) FOC																				■								
Modernization of IBS (IBS-NS, CIB, and CMF)	■																											
Initiated Enabling SCI-level Dissemination of Data	■																											
Initiated providing IBS Enterprise-level real time and analytic views on Global and COCOM watch floors	■																											
Initiated providing resilience to IBS CIB UHF Broadcast by utilizing the Mobile User Objective System (MUOS) Wideband Code Division Multiple Access (WCDMA) SATCOM payload	■																											
Initiated connecting the COCOM J2 CIB planning function with the COCOM J6 Integrated Waveform planning function	■																											
Initiate Development of ISR Cloud Interface								■																				
Initiate providing performance enhancement to throughput, storage and replay								■																				
Initiate Development of CIB Planning Tool and IBS-NS Capability at the COCOMs to Allow Automated Planning								■																				
Initiate transition of current classified dissemination path to new architecture								■																				
Initiate a solution for enhancement of uplink sites to handle operational surge increases								■																				

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305179F / <i>Integrated Broadcast Service (IBS)</i>	Project (Number/Name) 674779 / <i>Integrated Broadcast Service</i>
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	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021							
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
Initiate development of new monitoring and control tools to assist in assured dissemination tasks																																
Will initiate development of the IBS Thin Client																																
Will initiate development of the CIB MUOS Group Integration - Many to Many																																
Enterprise Systems Engineering of IBS (IBS-NS, CIB, and CMF)																																
Testing and Evaluation of IBS (IBS-NS, CIB, and CMF)																																

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305179F / <i>Integrated Broadcast Service (IBS)</i>	Project (Number/Name) 674779 / <i>Integrated Broadcast Service</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
IBS-NS Acquisition Strategy Plan (ASP) for Follow On Contract	4	2015	4	2015
IBS-NS Follow On Contract Award	4	2016	4	2016
IBS (IBS-NS, CIB, and CMF) FOC	4	2019	4	2019
Modernization of IBS (IBS-NS, CIB, and CMF)	1	2015	4	2021
Initiated Enabling SCI-level Dissemination of Data	1	2015	1	2015
Initiated providing IBS Enterprise-level real time and analytic views on Global and COCOM watch floors	1	2015	1	2015
Initiated providing resilience to IBS CIB UHF Broadcast by utilizing the Mobile User Objective System (MUOS) Wideband Code Division Multiple Access (WCDMA) SATCOM payload	1	2015	1	2015
Initiated connecting the COCOM J2 CIB planning function with the COCOM J6 Integrated Waveform planning function	1	2015	1	2015
Initiate Development of ISR Cloud Interface	1	2016	1	2016
Initiate providing performance enhancement to throughput, storage and replay	1	2016	1	2016
Initiate Development of CIB Planning Tool and IBS-NS Capability at the COCOMs to Allow Automated Planning	1	2016	1	2016
Initiate transition of current classified dissemination path to new architecture	1	2016	1	2016
Initiate a solution for enhancement of uplink sites to handle operational surge increases	1	2016	1	2016
Initiate development of new monitoring and control tools to assist in assured dissemination tasks	1	2016	1	2016
Will initiate development of the IBS Thin Client	1	2017	1	2017
Will initiate development of the CIB MUOS Group Integration - Many to Many	1	2017	1	2017
Enterprise Systems Engineering of IBS (IBS-NS, CIB, and CMF)	1	2015	4	2021
Testing and Evaluation of IBS (IBS-NS, CIB, and CMF)	1	2015	4	2021

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0305182F / <i>Spacelift Range System (SPACE)</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	-	10.134	6.881	11.867	0.000	11.867	10.518	10.716	10.913	11.105	Continuing	Continuing
674137: <i>Launch and Test Range System (LTRS) Modernization</i>	-	10.134	6.881	11.867	0.000	11.867	10.518	10.716	10.913	11.105	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Spacelift Range System (SLRS), also known as the Launch and Test Range System (LTRS), provides public safety and assured access to space. SLRS operates at the Eastern Range (ER) at Patrick AFB/Cape Canaveral AFS, FL and the Western Range (WR) at Vandenberg AFB, CA. SLRS provides tracking, telemetry, communications, flight safety, and other capabilities to support launch of national security space (NSS), civil and commercial space payloads, Intercontinental and Sea Launched ballistic missile and missile defense evaluations, and aeronautical and guided weapon tests. SLRS enables national security, civil, and commercial spacelift operations to be conducted safely; together with national security space launch capability, SLRS provides assured access to space for the nation. The ER and WR are part of the Department of Defense Major Range and Test Facility Base (MRTFB).

SLRS is comprised of twelve subsystems that together provide this capability to the ranges. The Range Safety and Command Destruct subsystems provide the capability to destroy an errant rocket, if necessary to protect public safety. These subsystems rely on the Telemetry, Radar, and Optics subsystems to provide tracking data. The Weather and Surveillance subsystems allow range operators and customers to determine if conditions are safe for launch. The Communications, Data Handling, and Timing & Sequencing subsystems ensure critical data is expeditiously routed from remote sensors (e.g. radars, optics, etc.) to range operators and customers. Finally, the Planning and Scheduling subsystem ensures all assets are available when needed for a launch or test operation.

As aging range systems exhibit decreasing reliability, leading to higher operations and maintenance costs and increasing the risk of launch delays, the Air Force requires RDT&E funds to conduct architecture analyses to optimize investment planning.

BA 7 - This program activity is in Budget Activity 7, Operational System Development, because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force				Date: February 2016	
Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>		R-1 Program Element (Number/Name) PE 0305182F / <i>Spacelift Range System (SPACE)</i>			
B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	13.318	6.902	12.521	0.000	12.521
Current President's Budget	10.134	6.881	11.867	0.000	11.867
Total Adjustments	-3.184	-0.021	-0.654	0.000	-0.654
• Congressional General Reductions	0.000	-0.021			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	-2.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	-1.184	0.000	-0.654	0.000	-0.654
C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017		
Title: Systems Engineering Support to Operational Baseline	5.572	1.409	8.304		
Description: Provides Advisory and Assistance Services (A&AS) support of the operational baseline (all twelve subsystems) to include configuration management of all range assets, requirements analyses, and special studies. Provides support for Systems Program Office operations, Systems Engineering and Technical Assistance (SETA), and Federally Funded Research and Development Centers (FFRDC).					
FY 2015 Accomplishments: Managed the baseline (all twelve subsystems) to include configuration management of all range assets, requirements, analysis, and special studies.					
FY 2016 Plans: Manage the baseline (all twelve subsystems) to include configuration management of all range assets, requirements, analysis, and special studies.					
FY 2017 Plans: Manage the baseline (all twelve subsystems) to include configuration management of all range assets, requirements, analysis, and special studies.					
Title: Systems Engineering and Integration to Support Government-Controlled Baseline	4.562	5.472	3.563		
Description: SE&I manages the government controlled system and subsystem level baseline requirements including analysis of future changes to the fielded baseline. SE&I provides "government as the integrator" engineering support to ensure multiple separate modernizations and the sustainment baseline are synchronized. SE&I will develop and recommend investment					

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0305182F / <i>Spacelift Range System (SPACE)</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
strategies to keep the Eastern and Western Ranges operating well beyond the FYDP. The current contract will transition to a Range and Network (RN) Enterprise SE&I contract in FY16.			
<i>FY 2015 Accomplishments:</i> Continued independent SE&I efforts as required to integrate modernization and sustainment efforts into future ranges. Provide systems and subsystem level definition, baseline, architecture, integration planning and support for future ranges.			
<i>FY 2016 Plans:</i> Continue independent SE&I efforts as required to integrate modernization and sustainment efforts into future ranges. Provide systems and subsystem level definition, baseline, architecture, integration planning and support for future ranges. Award RN Enterprise SE&I contract.			
<i>FY 2017 Plans:</i> Continue independent SE&I efforts as required to integrate modernization and sustainment efforts into future ranges. Provide systems and subsystem level definition, baseline, architecture, integration planning and support for future ranges.			
Accomplishments/Planned Programs Subtotals	10.134	6.881	11.867

D. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	FY 2015	FY 2016	FY 2017 <u>Base</u>	FY 2017 <u>OCO</u>	FY 2017 <u>Total</u>	FY 2018	FY 2019	FY 2020	FY 2021	<u>Cost To Complete</u>	<u>Total Cost</u>
• OPAF: BA03: Line item # 836770: <i>Spacelift Range System Space</i>	62.525	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
• SPAF: BA01: Line Item #SPRNGE: <i>Spacelift Range System Space</i>	0.000	103.275	123.088	0.000	123.088	123.615	133.474	123.248	110.325	Continuing	Continuing
• OPAF: BA05: Line Item # 86190A: <i>Spares and Repair Parts</i>	3.136	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

Remarks

E. Acquisition Strategy
Due to the fielded LTRS age and obsolescence issues, many systems need to be replaced (e.g. communications systems at ER & WR). These major modifications will be competed, typically among small business contractors, and selected through best value source selections. The competitively-selected SE&I contractor will manage government-controlled requirements and processes as well as provide support to the "government as the integrator" between LISC and separately competed modernization projects. FFRDC provides mission assurance oversight to ensure capabilities meet operational need.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity
3600: *Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development*

R-1 Program Element (Number/Name)
PE 0305182F / *Spacelift Range System (SPACE)*

F. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305182F / Spacelift Range System (SPACE)	Project (Number/Name) 674137 / Launch and Test Range System (LTRS) Modernization
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Spacelift Range System Contract (SLRSC)	C/CPAF	ITT Exelis : Cape Canaveral, FL	-	1.512	Nov 2014	0.000		0.000		0.000		0.000	Continuing	Continuing	TBD
SLRS Enterprise Systems Engineering and Integration	C/CPIF	Booz Allen Hamilton : McLean, VA	-	4.562	Aug 2015	1.962	Dec 2015	0.000		0.000		0.000	Continuing	Continuing	TBD
RN Enterprise Systems Engineering and Integration	C/TBD	TBD : TBD	-	0.000		3.510	Apr 2016	3.563	Apr 2017	0.000		3.563	Continuing	Continuing	TBD
LTRS Integrated Support Contract	C/Various	Range Generation Next, LLC : Dulles, VA	-	0.000		0.442	May 2016	7.635		0.000		7.635	Continuing	Continuing	TBD
Subtotal			-	6.074		5.914		11.198		0.000		11.198	-	-	-

Remarks

Product Development: The AF is recompeting the Systems Engineering and Integration Contract in FY 2016.

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
TEST AND EVALUATION (WS)	Various	MIT, 17th Test Squad, NAVAIR : Various	-	1.762		0.000		0.000		0.000		0.000	Continuing	Continuing	-
Subtotal			-	1.762		0.000		0.000		0.000		0.000	-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force													Date: February 2016		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0305182F / <i>Spacelift Range System (SPACE)</i>					Project (Number/Name) 674137 / <i>Launch and Test Range System (LTRS) Modernization</i>					

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
FFRDC	RO	Aerospace : El Segundo, CA	-	1.651	Nov 2014	0.677	Nov 2015	0.431	Nov 2016	0.000		0.431	Continuing	Continuing	TBD
OTHER SUPPORT	PO	Various : El Segundo, CA	-	0.647	Nov 2014	0.290	Nov 2015	0.238	Nov 2016	0.000		0.238	Continuing	Continuing	TBD
Subtotal			-	2.298		0.967		0.669		0.000		0.669	-	-	-

	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals		-	10.134	6.881	11.867	0.000	11.867	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305182F / <i>Spacelift Range System (SPACE)</i>	Project (Number/Name) 674137 / <i>Launch and Test Range System (LTRS) Modernization</i>

FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

LTRS Integrated Support Contract	[REDACTED]																											
Systems Engineering and Integration Contract	[REDACTED]																											

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305182F / <i>Spacelift Range System (SPACE)</i>	Project (Number/Name) 674137 / <i>Launch and Test Range System (LTRS) Modernization</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
LTRS Integrated Support Contract	1	2015	4	2021
Systems Engineering and Integration Contract	1	2015	1	2021

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0305202F / <i>Dragon U-2</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	-	5.511	34.471	37.217	0.000	37.217	6.942	1.487	0.000	0.000	0.000	85.628
674820: <i>Sensor Development</i>	-	5.511	34.471	37.217	0.000	37.217	6.942	1.487	0.000	0.000	0.000	85.628
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

The Central Intelligence Agency (CIA) established the Senior Year Program in 1955. The program has evolved significantly over the years to include the U-2 airframe, engines, sensors, cameras, recorders, data links, life support systems, test facilities and equipment. The U-2S model airframes were constructed in the late 1980s, with the last aircraft rolling off the assembly line in 1989. The U-2S provides global reconnaissance signals intelligence (SIGINT) and geospatial intelligence (GEOINT) 24 hours a day, seven days a week in support of national and DoD worldwide missions. The U-2 is currently deployed to forward operating locations (FOL) around the world. Modifications to the aircraft and payloads are required to ensure continued operational effectiveness in support of Combatant Commander Requirements and in accordance with previous NDAA guidance.

In the 2013 PB, the Air Force decided to retain the U-2 weapon system instead of retiring it. At that time sustainment efforts and capability upgrades to the platform and payloads were pursued to support National and Combatant Commander requirements.

In the 2015 PB, the Air Force decided to retire the U-2 in 2016. In accordance with 10 U.S.C. 2244a, the U-2 weapon system is identified as Equipment Scheduled For Retirement Or Disposal: Limitation On Expenditures For Modifications, stating that modification to any aircraft (i.e., a given tail number, weapon, or item of equipment that the SECAF plans to retire or otherwise dispose of within 5 years after the date on which the modification would be completed) are prohibited.

In the 2016 PB, the Air Force re-phases U-2 divestiture to begin in FY2019 and to complete no later than FY2020. In accordance with 10 U.S.C. 2244a, the Secretary of the Air Force may waive the prohibition on modifications if the Secretary determines that carrying out the modification is in the national security interest of the United States. Therefore, modifications required to address sustainment issues (diminishing manufacturing sources, vanishing vendor items) or operational utility may be submitted to the Secretary for approval to ensure operational effectiveness and to comply with guidance received in previous and current NDAs for the timeframe of phased divestiture. The National Security Waiver was signed by the Secretary of the Air Force on 26 May 2015.

In FY17, the Air Force will continue to address reliability, maintainability, sustainability, and safety issues and support U-2 integration of payloads and capabilities by taking prudent acquisition actions to meet operational requirements, comply with previous NDAA guidance, and IAW 10 U.S.C. Prudent acquisition activities also include trade studies, analyses, preliminary systems engineering, system and subsystem level testing in accordance with DoD and military standards, and specification development in support of both current program planning and execution as well as studies supporting analysis and investment in future U-2 program planning.

The U-2 Program provides funding for an Advanced Synthetic Aperture Radar System (ASARS) technology maturation effort. This effort will design, fabricate, integrate, and demonstrate system capability enhancements for a high altitude deep look SAR system.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0305202F / <i>Dragon U-2</i>
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This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	5.511	34.471	17.414	0.000	17.414
Current President's Budget	5.511	34.471	37.217	0.000	37.217
Total Adjustments	0.000	0.000	19.803	0.000	19.803
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	19.803	0.000	19.803

Change Summary Explanation

FY16 increase due to AF decision to rephrase U-2 divestiture to FY19

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
Title: U-2 Aircraft Update Block 20.1	5.011	0.000	9.902
Description: Aircraft enhancement development includes activities such as, but not limited to, trade studies, analysis, preliminary system engineering, system and subsystem testing or demonstrations, sensor specification development, Avionics Processor (AVP) upgrades, mission planning Joint Mission Planning System (JMPS) migration, Inertial Navigation System (INS) / Global Positioning System (GPS) stellar tracker initiatives, GPS upgrade, and tactical data link (L-16, IBS, IFDL, MADL, etc.) design and integration.			
FY 2015 Accomplishments: FY15 Supported aircraft sustainment activities such as, but not limited to, sensor sustainment and/or enhancements, avionics, mission planning, and airframe sustainment.			
FY 2016 Plans: No efforts are planned.			
FY 2017 Plans:			

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0305202F / <i>Dragon U-2</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
FY17 will support aircraft sustainment activities such as, but not limited to, sensor sustainment and/or enhancements, avionics, navigation systems, mission planning, and airframe sustainment. Title: U-2 Payload Update Block 20.1 Description: Aircraft payload development supports sustainment and/or enhancement development includes activities such as, but not limited to, trade studies, analysis, preliminary system engineering, system and subsystem testing or demonstrations, sensor specification development, technology maturation effort to design, fabricate, integrate and demonstrate enhanced capabilities on the Advanced Synthetic Aperture Radar System (ASARS) development, integration and test, defensive systems, strategic and tactical data link (L-16, IBS, IFDL, MADL, etc.) design and integration. FY 2015 Accomplishments: FY15 supported payload sustainment and/or enhancement activities such as, but not limited to, Advanced Synthetic Aperture Radar System (ASARS) design and development, Avionics Processor (AVP), mission planning Joint Mission Planning System (JMPS) migration. FY 2016 Plans: FY16 will support payload sustainment and/or enhancement activities such as, but not limited to, Advanced Synthetic Aperture Radar System (ASARS) development, integration and test, defensive systems, and datalinks. FY 2017 Plans: FY17 will support payload sustainment and/or enhancement activities such as, but not limited to, Advanced Synthetic Aperture Radar System (ASARS) development, sensor integration and test, defensive systems, datalinks, and associated ground support equipment.	0.500	34.471	27.315
Accomplishments/Planned Programs Subtotals	5.511	34.471	37.217

D. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u> <u>Base</u>	<u>FY 2017</u> <u>OCO</u>	<u>FY 2017</u> <u>Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• APAF: BA05: Line Item # 11U200: <i>U-2 Mods</i>	0.000	22.095	36.074	0.000	36.074	26.590	7.474	0.000	0.000	Continuing	Continuing
• OPAF: BA02: Line Item # 821800: <i>Passenger Carrying Vehicles</i>	0.064	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.313
• RDT&E: BA07: 0305206F: <i>Airborne Reconnaissance Systems</i>	20.172	19.450	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	-

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0305202F / <i>Dragon U-2</i>
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D. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u> <u>Base</u>	<u>FY 2017</u> <u>OCO</u>	<u>FY 2017</u> <u>Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• RDT&E: BA04: 0604257F: <i>Advanced Technology & Sensors</i>	0.000	0.000	15.769	0.000	15.769	15.730	14.007	27.157	0.000	-	-

Remarks

A portion of funds in Airborne Reconnaissance Systems and Advanced Technology & Sensors will be used to support sensor refurbishment and development.

E. Acquisition Strategy

Modifications to existing platform, payloads, and associated ground control equipment via Engineering Change Proposals (ECPs)/Task Orders on existing USAF contracts.

F. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305202F / <i>Dragon U-2</i>	Project (Number/Name) 674820 / <i>Sensor Development</i>
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
ASARS Phase 1	SS/CPFF	Raytheon/Lockheed Martin : El Segundo, CA	-	0.000		0.000		0.000		0.000		0.000	Continuing	Continuing	-
ASARS Phase 1 Enhancements Design	SS/CPFF	Raytheon/Lockheed Martin : El Segundo, CA	-	4.140	Sep 2015	2.183	Jan 2016	0.000		0.000		0.000	0.000	6.323	TBD
ASARS Phase 2 Integration & Demonstration	SS/CPIF	Raytheon/Lockheed Martin Aeronautics : El Segundo, CA	-	0.000		31.160	Mar 2016	16.700	Mar 2016	0.000		16.700	Continuing	Continuing	TBD
Avionics AVP Upgrade/OMS Analysis	SS/FFP	KIHOMAC : Layton, UT	-	0.911	Aug 2015	0.000		0.000		0.000		0.000	0.000	0.911	TBD
Ground Support Equipment	SS/CPFF	L3 Communications : Salt Lake City, UT	-	0.000		0.000		9.901	Nov 2016	0.000		9.901	Continuing	Continuing	TBD
Navigation System	SS/CPFF	Lockheed Martin Aeronautics : Palmdale, CA	-	0.000		0.000		9.902	Dec 2016	0.000		9.902	Continuing	Continuing	TBD
Subtotal			-	5.051		33.343		36.503		0.000		36.503	-	-	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Office Support	C/FFP	Not specified. : TBD	-	0.460	Jun 2015	1.128		0.714		0.000		0.714	Continuing	Continuing	-
Subtotal			-	0.460		1.128		0.714		0.000		0.714	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305202F / <i>Dragon U-2</i>	Project (Number/Name) 674820 / <i>Sensor Development</i>
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	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

Advanced Synthetic Aperture Radars System (ASARS)	
Ground Support Equipment	
Navigation System	

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305202F / <i>Dragon U-2</i>	Project (Number/Name) 674820 / <i>Sensor Development</i>
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Advanced Synthetic Aperture Radars System (ASARS)	1	2015	2	2019
Ground Support Equipment	1	2017	2	2018
Navigation System	1	2017	4	2019

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0305205F / <i>Endurance Unmanned Aerial Vehicles</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	-	20.000	5.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	25.000
67A026: <i>MAGIC</i>	-	20.000	5.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	25.000

A. Mission Description and Budget Item Justification

This PE focuses USAF efforts on long endurance platform projects and their associated sensors and communications suites. Efforts include, but are not limited to, optionally piloted airships, Remotely Piloted Aircraft (RPAs), or more standard aircraft platforms flown as manned or unmanned.

The Integrated Sensor Is Structure (ISIS) project intended to develop a radar that is fully integrated into a station-keeping, stratospheric airship. The ISIS project effort was completed in FY 2015.

The Medium Altitude Global ISR and Communications (MAGIC) project was developing a multiple-day, medium altitude ISR unmanned aircraft system (UAS) to provide long endurance surveillance with a multiple sensor payload. This concept was initiated by the Office of the Secretary of Defense (OSD) as a Joint Capabilities Technology Demonstration (JCTD) in FY 2010. Aurora Flight Sciences (AFS)'s Orion Remotely Piloted Aircraft (RPA) concept was chosen as the JCTD candidate by OSD/Director of Defense, Research and Engineering (DDR&E) per the recommendation of the Combatant Commands. The MAGIC/Orion RPA initiative was subsequently released from the JCTD process and transitioned to the Air Force as the sponsor and 645th Aeronautical Systems Group (AESG, a.k.a. BIG SAFARI Systems Program Office) as the manager of this developmental initiative in FY 2011. AFS and the 645th AESG performed flight test series demonstration August 2013 to March 2015 at Naval Air Weapons Station China Lake, CA. The flight test demonstration completed in FY 2015. The Block 0 (a.k.a. prototype) air vehicle and associated ground test articles have been re-located to Aurora Flight Sciences in Manassas, VA. Follow-on development of the Orion RPA Block 1 air vehicle and system continues with the remainder of the FY 2015 \$20M Congressional Add and the addition of the FY 2016 \$5M Congressional Add.

This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0305205F / <i>Endurance Unmanned Aerial Vehicles</i>
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B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	20.000	0.000	0.000	0.000	0.000
Current President's Budget	20.000	5.000	0.000	0.000	0.000
Total Adjustments	0.000	5.000	0.000	0.000	0.000
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	5.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	0.000	0.000	0.000

Congressional Add Details (\$ in Millions, and Includes General Reductions)

Project: 67A026: *MAGIC*

Congressional Add: *MAGIC*

	FY 2015	FY 2016
	20.000	5.000
Congressional Add Subtotals for Project: 67A026	20.000	5.000
Congressional Add Totals for all Projects	20.000	5.000

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305205F / <i>Endurance Unmanned Aerial Vehicles</i>	Project (Number/Name) 67A026 / <i>MAGIC</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
67A026: <i>MAGIC</i>	-	20.000	5.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	25.000
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

The Medium Altitude Global ISR and Communications (MAGIC) project was an Air Force led technology and concept development to demonstrate the ability for a Remotely Piloted Aircraft (RPA) to stay airborne in the medium altitude structure for a multiple day duration mission with a minimum of 1,000 pounds payload capacity of intelligence, surveillance and reconnaissance sensor systems. The MAGIC concept was initiated by OSD/DDR&E in FY 2010 in response to the Combatant Commanders ranking this type of initiative as the highest priority for a Joint Concept and Technology Demonstration (JCTD). In FY 2011, the Air Force accepted this initiative as the sponsor and MAGIC was subsequently removed from consideration as a JCTD and transitioned into the Air Force as a developmental project.

The MAGIC project was intended to provide the USAF with data regarding sensor and aircraft performance parameters at a multiple day duration at medium altitude flight. The objectives laid out in the JCTD competition and selection of Aurora Flight Sciences (AFS)'s Orion RPA for the long endurance demonstration was managed by the 645th Aeronautical Systems Group (AESG).

In FY 2010, OSD/DDR&E (now ASD/R&E) provided \$5M of initial funding to AFRL to initiate the MAGIC project. In FY 2011, ASD/R&E provided an additional \$5M to keep the MAGIC project development moving forward. The Air Force provided \$10M of FY 2011. Congressional Adds of \$19M in FY 2012, \$50M in FY 2013, and \$20M in FY 2015 provided the Endurance UAV program manager with the funding for the continuation of the Orion RPA development and initiation of the three phase flight testing series.

Orion RPA flight test series and demonstrations were accomplished at Naval Air Weapons Station (NAWS) China Lake, CA between August 2013 and March 2015. The objectives to test/demonstrate basic air vehicle performance, expansion of the flight characteristic envelope, a multiple day sortie and integration of a nominal sensor payload were successfully accomplished on the prototype (Block 0) Orion RPA in a controlled environment non-representative of an operational setting. Subsequent development efforts concentrated on the validation of the Orion RPA system requirements and concept design/specifications for a follow-on air vehicle (Block 1) capable of operational deployment in the event that the Air Force chooses the Orion RPA as a quick reaction capable system for a theater of operation or a program of record.

B. Accomplishments/Planned Programs (\$ in Millions)

Congressional Add: MAGIC	FY 2015	FY 2016
	20.000	5.000
FY 2015 Accomplishments: Flight Test Series completed at NAWS China Lake, CA in March 2015. Orion RPA demonstrated an 80-hour endurance flight, integration of a beyond line of sight SATCOM capability, and a full		

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305205F / <i>Endurance Unmanned Aerial Vehicles</i>	Project (Number/Name) 67A026 / <i>MAGIC</i>
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B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2015	FY 2016
motion video capable payload. Subsequent efforts concentrated on lessons learned from flight test and applied those concepts to the continued development of a deployable long endurance capability.		
FY 2016 Plans: Follow-on development efforts concentrating on lessons learned from the Orion RPA Block 0 flight test and applying those concepts to continue development of a Block 1 deployable Orion RPA long endurance capability.		
Congressional Adds Subtotals	20.000	5.000

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

N/A

Remarks

D. Acquisition Strategy

The acquisition strategy for the Air Force to develop a long endurance, persistent ISR capability for the Combatant Commanders was an outgrowth of a Joint Capabilities Technology Demonstration (JCTD) started in FY 2010. Development efforts contracted with Aurora Flight Sciences and their Orion RPA include: completion of studies analysis, development of a prototype air vehicle (Block 0), bench testing of engines and other aircraft components, ground continuity testing of select avionics, flight controls, and engine components, slow and high speed ground taxiing and a full flight series testing of the Orion RPA capabilities to include a multiple day, long duration flight demonstration. Efforts continue between the Aurora Flight Sciences production and management teams and the 645 AESG Systems Program Office to continue hardware and software engineering and development to meet operational airworthiness standards and mission requirements for a deployable air vehicle (Block 1).

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305205F / <i>Endurance Unmanned Aerial Vehicles</i>	Project (Number/Name) 67A026 / <i>MAGIC</i>
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Product Design and Development	SS/CPFF	Aurora : Manassas, VA	-	10.800	Jan 2015	4.000	May 2016	0.000		0.000		0.000	Continuing	Continuing	14.800
Subtotal			-	10.800		4.000		0.000		0.000		0.000	-	-	14.800

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Test	SS/CPFF	Aurora : Manassas, VA	-	7.600	Jan 2015	0.000		0.000		0.000		0.000	Continuing	Continuing	7.600
Subtotal			-	7.600		0.000		0.000		0.000		0.000	-	-	7.600

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
PMA	Allot	645 AESG : Dayton, OH	-	1.600	Jan 2015	1.000	Jan 2016	0.000		0.000		0.000	Continuing	Continuing	-
Subtotal			-	1.600		1.000		0.000		0.000		0.000	-	-	-

			Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	20.000	5.000	0.000	0.000	0.000	-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force							Date: February 2016			
Appropriation/Budget Activity 3600 / 7			R-1 Program Element (Number/Name) PE 0305205F / <i>Endurance Unmanned Aerial Vehicles</i>			Project (Number/Name) 67A026 / <i>MAGIC</i>				
	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract	

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305205F / <i>Endurance Unmanned Aerial Vehicles</i>	Project (Number/Name) 67A026 / <i>MAGIC</i>

	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Retrofit Schedule B -- Block 0 Component Integration	■																											
Flight Test Series 3.1, Long Endurance Demonstration (November-December 2014)	■																											
Sensor Payload Integration		■																										
Flight Test Series 3.2, Payload Integration (March 2015)		■																										
Block 1 Engineering Development, System Requirements and Concept Design Reviews			■	■																								
Block 1 Mature Design Beyond Concept Stage and Interim Design Reviews						■	■	■																				

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305205F / <i>Endurance Unmanned Aerial Vehicles</i>	Project (Number/Name) 67A026 / <i>MAGIC</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Retrofit Schedule B -- Block 0 Component Integration	1	2015	1	2015
Flight Test Series 3.1, Long Endurance Demonstration (November-December 2014)	1	2015	1	2015
Sensor Payload Integration	2	2015	2	2015
Flight Test Series 3.2, Payload Integration (March 2015)	2	2015	2	2015
Block 1 Engineering Development, System Requirements and Concept Design Reviews	3	2015	4	2015
Block 1 Mature Design Beyond Concept Stage and Interim Design Reviews	1	2016	4	2016

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0305206F / <i>Airborne Reconnaissance Systems</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	-	37.649	60.142	3.841	0.000	3.841	3.419	3.479	3.544	3.607	Continuing	Continuing
674818: <i>Imaging and Targeting Support</i>	-	20.169	19.450	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	39.619
675092: <i>JTC/SIL MUSE</i>	-	3.934	3.475	3.841	0.000	3.841	3.419	3.479	3.544	3.607	Continuing	Continuing
675148: <i>Common-Airborne Sense and Avoid (C-ABSAA)</i>	-	0.000	19.735	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	19.735
675291: <i>Gorgon Stare</i>	-	10.000	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	20.000
675292: <i>Hyperspectral Sensors</i>	-	3.546	2.679	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	6.225
676025: <i>Data Compression</i>	-	0.000	4.803	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.803

Note

In FY 2017, PE 0305206F, Airborne Reconnaissance Systems, Project 674818, Imaging and Targeting Support (I&TS), efforts will transfer to PE 0604257F, Advanced Technology and Sensors, Project 644818, Imaging and Targeting Support, in order to increase visibility into this technology maturation effort.

In FY2017, PE 0305206F, Airborne Reconnaissance Systems, Project 675148, Common-Airborne Sense and Avoid (C-ABSAA), efforts will transfer to PE 0604257F, Advanced Technology and Sensors, Project 645148, Common Airborne Sense and Avoid (C-ABSAA), in order to provide greater visibility into this capability.

In FY 2017, PE 0305206F, Airborne Reconnaissance Systems, Project 676025, Data Compression, efforts will transfer to PE 0604257F, Advanced Technology and Sensors, Project 646025, Data Compression, in order to provide greater visibility into this capability.

In FY 2017, Project 675292, Hyperspectral Sensors, will terminate.

A. Mission Description and Budget Item Justification

The Airborne Reconnaissance Systems (ARS) program coordinates the development of advanced technologies (sensors, data links, targeting networks and products, and quick reaction capabilities) in support of multiple airborne reconnaissance platforms, both manned and unmanned. Its objectives are to develop, demonstrate, and rapidly transition advanced, interoperable, multi-platform solutions to reduce the find, fix, target, and track kill chain timeline, and to provide safe separation and collision avoidance for Remotely Piloted Aircraft (RPAs). It provides for modeling/simulation, training and systems engineering. This program also coordinates the development of common collection, processing, and dissemination solutions for near-real time Intelligence, Surveillance, and Reconnaissance (ISR).

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.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0305206F / <i>Airborne Reconnaissance Systems</i>
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This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	37.652	50.154	45.886	0.000	45.886
Current President's Budget	37.649	60.142	3.841	0.000	3.841
Total Adjustments	-0.003	9.988	-42.045	0.000	-42.045
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	10.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	-0.003	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	-0.012	-42.045	0.000	-42.045

Congressional Add Details (\$ in Millions, and Includes General Reductions)

Project: 675291: *Gorgon Stare*

Congressional Add: *Beyond Line of Sight*

Congressional Add: *Wide-Area Motion Imagery*

Congressional Add Subtotals for Project: 675291

Congressional Add Totals for all Projects

	FY 2015	FY 2016
	10.000	-
	-	10.000
Congressional Add Subtotals for Project: 675291	10.000	10.000
Congressional Add Totals for all Projects	10.000	10.000

Change Summary Explanation

In FY 2017, PE 0305206F, Airborne Reconnaissance Systems, Projects 674818,675148,and 676025 (Imaging and Targeting Support, Common Airborne Sense and Avoid (C-ABSAA), and Data Compression) will transfer into PE 0604257F, Advanced Technology and Sensors, Projects 644818,645148, and 646025(Imaging and Targeting Support, Common Airborne Sense and Avoid, and Data Compression) in order to increase visibility into these efforts.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force										Date: February 2016		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0305206F / Airborne Reconnaissance Systems				Project (Number/Name) 674818 / Imaging and Targeting Support			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
674818: <i>Imaging and Targeting Support</i>	-	20.169	19.450	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	39.619
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Note

In FY 2017, PE 0305206F, Airborne Reconnaissance Systems, Project 674818, Imaging and Targeting Support (I&TS), efforts will transfer to PE 0604257F, Advanced Technology and Sensors, Project 644818, Imaging and Targeting Support, in order to increase visibility into this technology maturation effort.

A. Mission Description and Budget Item Justification

The purpose of the Imaging and Targeting Support (I&TS) project is to develop and demonstrate next-generation, persistent, wide area surveillance, aircraft avoidance, and common imagery reconnaissance sensor capabilities (radar and electro-optical systems), including sensor data processing, for multiple airborne platforms, as well as 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(GMTI), foliage penetration, and additional radar, electro-optical, and other modalities; increased geolocation accuracy; increased dismount detection capability; 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. These efforts are intended to reduce both target search and kill chain timelines as well as supporting traditional intelligence activities. This project will also increase interoperability among developed systems by developing common standards and tools.

The funds in this project, less Congressional adds and Quick Reaction Capabilities (QRCs), are distributed in priority order, as supported by the Challenging Targets Initial Capabilities Document and set by the GEOINT Capabilities Working Group, for the goal of building a comprehensive Geospatial Intelligence (GEOINT) capability for the USAF. On an annual basis, developmental technologies are reviewed against warfighter capabilities and requirements based on strategic roadmaps. Efforts advancing the technological maturity of promising sensors and processing capabilities are reviewed and prioritized into a recommended list for senior executive direction to implement in the coming year.

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

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Imaging & Targeting Support (I&TS)	20.069	19.350	0.000	-	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305206F / Airborne Reconnaissance Systems	Project (Number/Name) 674818 / Imaging and Targeting Support

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>Description: Develop/demonstrate and advance technical maturity of promising sensors and processing capabilities (ex: radar improvement, next-generation hyperspectral imaging (HSI), laser radar/light detection and ranging (LADAR/LIDAR), and data mitigation technologies).</p> <p>FY 2015 Accomplishments:</p> <ul style="list-style-type: none"> - Demonstrated advanced HSI focal plane array material, sensors, and detection algorithms, multiband longer range EO/IR sensors, other GEOINT sensor modalities for cueing and future data fusion, improved on-board data processing, improved/ advanced radar sensor algorithms and capabilities, polarimetric imaging, and high volume on-board data storage. Enhanced capabilities of airborne LIDAR. - Modernized advanced SAR sensors for future high-altitude applications, Anti-Access Area Denial, and foliage penetration (FPEN). <p>FY 2016 Plans:</p> <ul style="list-style-type: none"> - Continue development, upgrade, and demonstration of advanced sensors and detection and processing algorithms, hyperspectral imaging technologies, multiband EO/IR and SAR sensor systems, enhanced LIDAR capabilities, polarimetric imaging, and other GEOINT sensing modalities for Anti-Access Area Denial, permissive and non-permissive environments, FPEN, and littoral environments. <p>FY 2017 Base Plans:</p> <p>FY 2017 activities will be reported under PE 0604257F, Project 644818, Imaging and Targeting Support.</p>					
<p>Title: Advanced Synthetic Aperture Radar System (ASARS) 2B</p> <p>Description: Design/fabricate/integrate/demonstrate completion of technical maturation effort for deep look high altitude SAR. Includes total government and contractor costs for this project.</p> <p>FY 2015 Accomplishments:</p> <ul style="list-style-type: none"> - Designed technical maturation effort for deep look high altitude SAR. <p>FY 2016 Plans:</p> <ul style="list-style-type: none"> - Continue technical maturation effort for deep look high altitude SAR. <p>FY 2017 Base Plans:</p> <p>FY 2017 activities will be reported under PE 0604257F, Project 644818, Imaging and Targeting Support.</p>	0.100	0.100	0.000	-	0.000
Accomplishments/Planned Programs Subtotals	20.169	19.450	0.000	-	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305206F / Airborne Reconnaissance Systems	Project (Number/Name) 674818 / Imaging and Targeting Support

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

Line Item	FY 2015	FY 2016	FY 2017	FY 2017	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	Cost To	Total Cost
			Base	OCO	Total					Complete	
• RDTE: BA07: PE 0305202F: <i>Dragon U-2 (JMIP)</i>	5.511	34.471	37.217	0.000	37.217	6.942	1.487	0.000	0.000	-	-

Remarks

A portion of the funding within the U-2 RDTE line will be used to advance ASARS design, development, test and demonstration.

D. Acquisition Strategy

Imaging and Targeting Support efforts are prioritized on an annual basis by the GEOINT Capabilities Working Group (GCWG), in accordance with the validated gaps in the Challenging Targets ICD. Resulting funded efforts are then contracted for and/or executed by either various program offices, laboratories, industry, and/or other government agencies (OGAs).

ASARS technology maturation is conducted by AFLCMC/WIN, in conjunction and cooperation with AFLCMC/Warner Robbins (U-2 system program office).

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.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force												Date: February 2016			
Appropriation/Budget Activity 3600 / 7				R-1 Program Element (Number/Name) PE 0305206F / Airborne Reconnaissance Systems				Project (Number/Name) 674818 / Imaging and Targeting Support Systems							
Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Lidar-HSI Data Fusion	SS/CPFF	MIT LL : Lexington, MA	-	2.280	Jun 2015	2.220	Feb 2016	0.000		0.000		0.000	Continuing	Continuing	4.500
HEIRS	SS/CPFF	Lockheed Martin, Leidos, UTC Aerospace Systems : Various	-	3.100	Oct 2014	0.000		0.000		0.000		0.000	Continuing	Continuing	3.100
KeyRadar / AMMOD	SS/CPFF	KEYW : Severn, MD	-	3.500	Aug 2015	3.164	Mar 2016	0.000		0.000		0.000	Continuing	Continuing	6.664
SlimSAR Multi-INT	SS/FFP	Artemis, BAE : Hauppauge, NY	-	1.790	Aug 2015	2.369	Apr 2016	0.000		0.000		0.000	Continuing	Continuing	4.159
LWIR PI	C/CPFF	Raytheon : El Segundo, CA	-	1.000	Feb 2015	1.000	Feb 2016	0.000		0.000		0.000	Continuing	Continuing	2.000
HPC Processing	SS/CPFF	BAE, Leidos, KEYW : Dayton, OH	-	2.450	Oct 2014	2.050	Nov 2015	0.000		0.000		0.000	Continuing	Continuing	4.500
Common Module Spectrometer	SS/CPFF	Raytheon : El Segundo, CA	-	0.000		4.000	Dec 2015	0.000		0.000		0.000	Continuing	Continuing	4.000
Si:Ga Phase II	MIPR	Government : Washington, DC	-	1.500	May 2015	0.000		0.000		0.000		0.000	Continuing	Continuing	-
MSGLPS	Various	Government, Ascendant Engineering Solutions : Austin, TX	-	1.645	Jun 2015	0.000		0.000		0.000		0.000	Continuing	Continuing	1.645
MTS-B Turbulence Correction	SS/CPFF	Raytheon : McKinney, TX	-	0.800	Dec 2015	0.700	Jan 2016	0.000		0.000		0.000	Continuing	Continuing	1.500
DRACO for MQ-9	SS/CPFF	Lockheed Martin : King of Prussia, PA	-	0.000		0.750	Feb 2016	0.000		0.000		0.000	Continuing	Continuing	-
ASARS 2B	SS/CPFF	Raytheon : El Segundo, CA	-	0.100	Jun 2015	0.100	Apr 2016	0.000		0.000		0.000	Continuing	Continuing	-
Other Tech Efforts (prioritized by GCWG)	Various	Various : Various	-	0.903	Dec 2014	1.647	Apr 2016	0.000		0.000		0.000	Continuing	Continuing	-
Subtotal			-	19.068		18.000		0.000		0.000		0.000	-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305206F / Airborne Reconnaissance Systems	Project (Number/Name) 674818 / Imaging and Targeting Support
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			

Remarks
FY 2017 contract efforts reported under PE 0604257F, project 644818.

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-	-	-	-	-	-	-	-	-	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-	-	-	-	-	-	-	-	-	-	-	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
PMA: Other Govt Cost	SS/T&M	Various : Dayton, OH	-	1.101	Dec 2014	1.450	Jan 2016	0.000		0.000		0.000	Continuing	Continuing	-
Subtotal			-	1.101		1.450		0.000		0.000		0.000	-	-	-

			Prior Years	FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	20.169	19.450	0.000		0.000		0.000		-	-	-	

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force **Date: February 2016**

Appropriation/Budget Activity
3600 / 7

R-1 Program Element (Number/Name)
PE 0305206F / *Airborne Reconnaissance Systems*

Project (Number/Name)
674818 / *Imaging and Targeting Support Systems*

	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Advanced SAR Development	[Redacted]																											
- Key Radar	[Redacted]																											
- AMMOD	[Redacted]																											
-- Lab Demo (AMMOD)	[Redacted]																											
- SlimSAR Multi-INT	[Redacted]																											
Advanced EO/IR / Spectral Development	[Redacted]																											
- Common Module	[Redacted]																											
-- CDR (Common Module)	[Redacted]																											
-- Flight Demo (Common Module)	[Redacted]																											
- Si:Ga Phase II	[Redacted]																											
-- Prototype Delivery (Si:Ga)	[Redacted]																											
- HALO	[Redacted]																											
- HEIRS	[Redacted]																											
-- Flight Test (HEIRS)	[Redacted]																											
- LWIR PI	[Redacted]																											
Advanced LIDAR Development	[Redacted]																											
- Lidar/HSI Data Fusion	[Redacted]																											
-- Flight Demos (Lidar/HSI Data Fusion)	[Redacted]																											
Sensor Studies & Analysis	[Redacted]																											
Advance Airborne PCPAD Development	[Redacted]																											
- HPC Processing	[Redacted]																											
-- Ground-based Demo (HPC Processing)	[Redacted]																											
-- On-board Demo (HPC Processing)	[Redacted]																											
- PETRA	[Redacted]																											

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305206F / Airborne Reconnaissance Systems	Project (Number/Name) 674818 / Imaging and Targeting Support
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	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

-- Data Storage Demo (PETRA)	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
- DRACO 3.0	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Other Technology Efforts (Prioritized by GCWG)	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
- ASARS 2B	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305206F / Airborne Reconnaissance Systems	Project (Number/Name) 674818 / Imaging and Targeting Support

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Advanced SAR Development	1	2015	4	2016
- Key Radar	4	2015	4	2016
- AMMOD	4	2015	4	2016
-- Lab Demo (AMMOD)	4	2016	4	2016
- SlimSAR Multi-INT	4	2015	4	2016
Advanced EO/IR / Spectral Development	1	2015	4	2016
- Common Module	1	2015	4	2016
-- CDR (Common Module)	2	2015	2	2015
-- Flight Demo (Common Module)	4	2016	4	2016
- Si:Ga Phase II	2	2015	2	2016
-- Prototype Delivery (Si:Ga)	2	2016	2	2016
- HALO	1	2015	1	2016
- HEIRS	1	2015	4	2016
-- Flight Test (HEIRS)	3	2016	3	2016
- LWIR PI	1	2015	4	2016
Advanced LIDAR Development	1	2015	4	2016
- Lidar/HSI Data Fusion	3	2015	4	2016
-- Flight Demos (Lidar/HSI Data Fusion)	4	2015	4	2016
Sensor Studies & Analysis	1	2015	4	2016
Advance Airborne PCPAD Development	1	2015	4	2016
- HPC Processing	1	2015	4	2016
-- Ground-based Demo (HPC Processing)	4	2015	4	2015

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305206F / Airborne Reconnaissance Systems	Project (Number/Name) 674818 / Imaging and Targeting Support
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Events	Start		End	
	Quarter	Year	Quarter	Year
-- On-board Demo (HPC Processing)	2	2016	2	2016
- PETRA	1	2015	3	2015
-- Data Storage Demo (PETRA)	2	2015	2	2015
- DRACO 3.0	2	2016	4	2016
Other Technology Efforts (Prioritized by GCWG)	1	2015	4	2016
- ASARS 2B	1	2015	4	2016

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force										Date: February 2016		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0305206F / Airborne Reconnaissance Systems				Project (Number/Name) 675092 / JTC/SIL MUSE			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
675092: JTC/SIL MUSE	-	3.934	3.475	3.841	0.000	3.841	3.419	3.479	3.544	3.607	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Joint Technology Center/Systems Integration Laboratory (JTC/SIL) is a center of technical excellence to support Unmanned Aircraft Systems (UAS) and Remotely Piloted Aircraft (RPA) programs within the services. The mission includes Service-specific and Joint Command, Control, Communications, Computers and Intelligence, Surveillance, and Reconnaissance (C4ISR) programs throughout DoD. The JTC/SIL provides a Government testbed for interoperability, rapid prototyping, technology insertion and transition, systems engineering, modeling/simulation, training and C4ISR optimization. The cornerstone of JTC/SIL's diverse tool set is the Multiple Unified Simulation Environment (MUSE), which is the DoD simulation/training system of choice for many UAS, RPA and ISR systems. The MUSE is also known as the Air Force Synthetic Environment for Reconnaissance and Surveillance (AFSERS) in its Air Force application. The MUSE/AFSERS simulates Air Vehicles, Sensors, Datalinks, Takeoff and Landing Systems, and to some degree, surrogate UAS and RPA ground stations, when actual ground stations are unavailable.

The Services and combatant 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 employment development, and Tactics, Techniques, and Procedures (TTP) refinement, conduct emerging concepts experimentation, and optimize C4ISR within warfighting exercises and experiments. It is the preferred simulation system used by the combatant commanders and Joint Services to support command and battle staff C4ISR training.

The MUSE/AFSERS also creates a realistic operational environment that supports: an embedded training capability for multiple Program Managers; tools to minimize acquisition and life cycle cost and schedule impacts; ability to conduct emerging concepts experimentation, future systems exploration, systems integration, and technology insertion; applications for Joint and Service-specific warfighting exercises; and C4ISR optimization.

MUSE/AFSERS is currently in use within all Services and most unified commands simulating MQ-1, MQ-9, RQ-4, MQ-1C, M/RQ-5, RQ-7, national and commercial satellite collectors, P-3, E-8, and the U-2. During warfighting exercises, the JTC/SIL integrates imagery simulations with associated C4ISR systems to support the execution of critical imagery processes. 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 military combat operations.

The JTC/SIL supports the OSD UAS Task Force staff and the Standards and Interoperability Integrated Product Team, as well as the joint team working the Ground Segment Interface. The JTC/SIL is the primary custodian of this interface and in that role performs various supporting tasks including development of tools for helping the definition and execution of open architecture for joint service ground control systems, developing and maintaining standardization agreement (STANAG) 45 joint interoperability tasks to be defined on an annual basis.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305206F / Airborne Reconnaissance Systems	Project (Number/Name) 675092 / JTC/SIL MUSE
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Activities also include studies and analysis supporting current and future program planning and project execution.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>Title: Air Force Synthetic Environment for Reconnaissance and Surveillance (AFSERS) Development</p> <p>Description: DoD's simulation/training system of choice for ISR systems, sensors, and platforms. Includes AFSERS, Common Ground Station Interface, and infrastructure support.</p> <p>FY 2015 Accomplishments:</p> <ul style="list-style-type: none"> - Enhanced the Multiple Unified Simulation Environment (MUSE) mission planning training software to facilitate ease of use, concurrency and interoperability with current mission planning application capabilities. - Enhanced MUSE Service Oriented Architecture to support Cloud computing for US Air Force military exercises, to include Distributed Mission Operations Network (DMON) certification. - Enhanced MUSE interoperability with Air Force federations such as Air, Space, and Cyberspace Constructive Environment; joint, live, virtual, constructive training, and specific federated interfaces with the Air Force intelligence-operations simulation. - Developed new ISR sensor simulation training capabilities to reflect service emerging assets, such as multi-sensor platforms. - Developed and ported applicable training software for hosting on portable devices. Continued Intel Simulation Training support at Goodfellow Air Force Base. <p>FY 2016 Plans:</p> <ul style="list-style-type: none"> - Continue to redesign the Vignette Planning and Rehearsal Software by implementing a Service Oriented Architecture (SOA) to facilitate external users developing generic solutions and to optimize the software baseline to maintain pace with the training audience's requirements, thereby reducing the costs of travel and training. - Redesign MUSE/AFSERS U2/RQ-4 (FFI - Fixed Frame Imagery) simulation Capability. - Design and implement a Heads Up Display (HUD) wizard. - Complete the full virtualization of MUSE/AFSERS. - Continue to implement Web enabled MUSE/AFSERS that will allow users to train via a web browser, without needing the MUSE/AFSERS software installed on their systems. - Implement ports management into the MUSE/AFSERS baseline to better facilitate Information Assurance guidance and to be in accordance with the upcoming RMF (Risk Management Framework) that will replace DIACAP (Department of Defense Information Assurance and Accreditation Process). - Provide Exercise Support for Unified Endeavor, Key Resolve (KASC & KBSC - Korean Air Simulation Center & Korean Battle Simulation Center) & Ulchi Freedom Guardian (KASC & KBSC). 	1.934	3.475	3.841	-	3.841

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305206F / Airborne Reconnaissance Systems	Project (Number/Name) 675092 / JTC/SIL MUSE

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
- Continue Intel Simulation Training support at Goodfellow Air Force Base. FY 2017 Base Plans: - Will continue Heads up Display (HUD) creator - Will redesign Windows Entity Server (WES) and NeLink software tools to support the increased scale of exercises - Will redesign Control Station Surrogate to support the increased scale of exercises while leveraging technology advances - Will continue migration of legacy code to C# and/or 64 Bit - Will be migrating from DIACAP (Department of Defense Information Assurance and Accreditation Process) to RMF (Risk Management Framework) - Will enhanced Weaponization capability - Will continue integration with NVIG (Night Vision Image Generator)					
Title: OSD Interoperability Support Description: Joint Technology Center (JTC)/Systems Integration Laboratory (SIL) support to OSD interoperability requirements. Air Force portion of joint funding requirement. FY 2015 Accomplishments: Completed Air Force support to OSD interoperability efforts, including support and configuration management of architecture products. FY 2016 Plans: N/A FY 2017 Base Plans: N/A	2.000	0.000	0.000	-	0.000
Accomplishments/Planned Programs Subtotals	3.934	3.475	3.841	-	3.841

C. Other Program Funding Summary (\$ in Millions)										
Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete Total Cost
• RDTE: BA07: PE 0305204A: <i>Tactical Unmanned Aerial Vehicles</i>	4.695	2.498	3.942	0.000	3.942	4.568	4.615	4.832	4.979	Continuing Continuing

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305206F / Airborne Reconnaissance Systems	Project (Number/Name) 675092 / JTC/SIL MUSE

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

Line Item	FY 2015	FY 2016	FY 2017	FY 2017	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	Cost To		
			Base	OCO	Total					Complete	Total Cost	
• RDTE: BA07: PE 0603261N: <i>Tactical Airborne Reconnaissance</i>	2.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

Remarks

D. Acquisition Strategy

This is an enterprise services effort, jointly funded and centrally managed by the US Army. AFLCMC/WIN MIPRs funds in support of UAS modeling and simulation efforts.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305206F / Airborne Reconnaissance Systems	Project (Number/Name) 675092 / JTC/SIL MUSE
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
AFSERS Development	MIPR	Redstone Arsenal : Huntsville, AL	-	1.934	Jan 2015	3.475	Jan 2016	3.841	Jan 2017	0.000		3.841	Continuing	Continuing	-
Subtotal			-	1.934		3.475		3.841		0.000		3.841	-	-	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
OSD Interoperability Support	MIPR	Redstone Arsenal : Huntsville, AL	-	2.000	Feb 2015	0.000		0.000		0.000		0.000	Continuing	Continuing	-
Subtotal			-	2.000		0.000		0.000		0.000		0.000	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

			Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	3.934	3.475	3.841	0.000	3.841	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305206F / Airborne Reconnaissance Systems	Project (Number/Name) 675092 / JTC/SIL MUSE

	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
AFSERS Development	[REDACTED]																											
Interoperability Support	[REDACTED]																											

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305206F / Airborne Reconnaissance Systems	Project (Number/Name) 675092 / JTC/SIL MUSE

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
AFSERS Development	1	2015	4	2021
Interoperability Support	1	2015	4	2015

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force										Date: February 2016		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0305206F / Airborne Reconnaissance Systems				Project (Number/Name) 675148 / Common-Airborne Sense and Avoid (C-ABSAA)			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
675148: Common-Airborne Sense and Avoid (C-ABSAA)	-	0.000	19.735	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	19.735
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In FY 2017, Common-Airborne Sense and Avoid(C-ABSAA) will transfer to PE 0604257F, Advanced Technology and Sensors, Project 645148, Common-Airborne Sense & Avoid (C-ABSAA), in order to provide greater visibility into this capability.

A. Mission Description and Budget Item Justification

Common-Airborne Sense and Avoid (C-ABSAA) is an analysis and developmental effort in the pre-Material Development Decision phase of the acquisition lifecycle which supports emerging warfighter requirements to fully integrate Group 4-5 RPA into the National Airspace System (NAS), international airspace, other nations' sovereign airspace, and operational combat airspace to conduct the entire range of military operations across all mission environments. C-ABSAA also supports the "Worldwide Operations" Key Performance Parameter (KPP) in larger Remotely Piloted Aircraft (RPA) requirement documents, and Public Law 112-239 directing DoD collaboration with the Federal Aviation Administration (FAA) and the National Air and Space Administration (NASA) to safely integrate RPA in the NAS. Funding in this project supports the development of a Sense and Avoid (SAA) capability for Group 4-5 RPA and covers analysis, research, and developmental activities as well as infrastructure and other government costs. Ongoing activities include support to the development of warfighter requirements and analysis of possible solution alternatives, collaboration with the FAA, NASA, and other Services to develop national policy and standards, and SAA related studies, analysis, modeling and simulation, program planning and project execution. RPA platform specific integration and testing is not included.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: SAA-Related Requirements Development and Analysis, National Policy Standards Development, and Technology Development and Demonstration	0.000	19.735	0.000	0.000	0.000
Description: Support development and analysis of warfighter requirements and analysis of possible solution alternatives. Develop Sense and Avoid (SAA) technology and capabilities for Group 4-5 RPA. Collaborate with the FAA, NASA, and other Services to develop national policy and standards. Conduct SAA related studies, analysis, modeling and simulation, demonstrations, program planning and project execution.					
FY 2015 Accomplishments: - Efforts prior to FY 2016 reported under PE 0305220F.					
FY 2016 Plans:					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305206F / Airborne Reconnaissance Systems	Project (Number/Name) 675148 / Common-Airborne Sense and Avoid (C-ABSAA)
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
- Continue to conduct Developmental Planning/Pre-Analysis of Alternatives activity leading to a Material Development Decision - Continue to collaborate with FAA, NASA, and other Services on national policy and standards, and to build and exercise modeling and simulation capabilities to support requirements, policy/standards, and technology development - Continue SAA science and technology research and development with AFRL FY 2017 Base Plans: - FY 2017 efforts will be reported under PE 0604257F, Advanced Technology and Sensors, Project 645148, Common-Airborne Sense & Avoid (C-ABSAA). FY 2017 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	0.000	19.735	0.000	0.000	0.000

C. Other Program Funding Summary (\$ in Millions)
N/A

Remarks

D. Acquisition Strategy
C-ABSAA will integrate Better Buying Power 3.0 initiatives throughout its acquisition lifecycle and rely upon acquisition of government data rights to maximize contractor competition from Technology Development through Production. The program uses an incremental acquisition strategy to provide the warfighter with SAA capability for Group 4-5 RPA with increased, time-phased capability improvements as technology and risks achieve satisfactory levels. Group 4-5 RPA platforms will be expected to integrate the C-ABSAA provided capability into their unique systems via retrofit or in design, development, and/or production.

E. Performance Metrics
Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305206F / Airborne Reconnaissance Systems	Project (Number/Name) 675148 / Common-Airborne Sense and Avoid (C-ABSAA)
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
C-ABSAA Technology Development	C/Various	Various : Various	-	0.000		18.936	Oct 2015	0.000		0.000		0.000	Continuing	Continuing	-
Subtotal			-	0.000		18.936		0.000		0.000		0.000	-	-	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Management Administration (PMA)	Various	Various : Dayton, OH	-	0.000		0.799	Oct 2015	0.000		0.000		0.000	Continuing	Continuing	-
Subtotal			-	0.000		0.799		0.000		0.000		0.000	-	-	-

Remarks
The Target supports multiple technology development contracts.

	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals		-	0.000	19.735	0.000	0.000	-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force							Date: February 2016			
Appropriation/Budget Activity 3600 / 7			R-1 Program Element (Number/Name) PE 0305206F / <i>Airborne Reconnaissance Systems</i>			Project (Number/Name) 675148 / <i>Common-Airborne Sense and Avoid (C-ABSAA)</i>				
	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract	

Remarks
The Target Value supports multiple technology development contracts.

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305206F / Airborne Reconnaissance Systems	Project (Number/Name) 675148 / Common-Airborne Sense and Avoid (C-ABSAA)

	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Initial Capabilities Document (ICD)	██████████																											
Development Planning/Pre-Analysis of Alternatives	██████████																											
Analysis of Alternatives	██████████																											

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305206F / <i>Airborne Reconnaissance Systems</i>	Project (Number/Name) 675148 / <i>Common-Airborne Sense and Avoid (C-ABSAA)</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Initial Capabilities Document (ICD)	1	2015	3	2015
Development Planning/Pre-Analysis of Alternatives	3	2015	1	2016
Analysis of Alternatives	1	2016	4	2016

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305206F / Airborne Reconnaissance Systems	Project (Number/Name) 675291 / Gorgon Stare
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
675291: <i>Gorgon Stare</i>	-	10.000	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	20.000
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Gorgon Stare provides city-sized wide area airborne surveillance for Combatant Commanders and is managed by the 645th Aeronautical Systems Group, Intelligence, Surveillance, and Reconnaissance and Special Operations Forces (ISR&SOF) Directorate. The Gorgon Stare system provides a podded wide area airborne sensor suite integrated on specially-modified MQ-9 Reaper Remotely Piloted Aircraft (RPA). The Air Force Requirements Oversight Council (AFROC) approved Air Combat Command's recommendation to transition Gorgon Stare from a Quick Reaction Capability to an Air Force Enduring Capability in November 2014. Gorgon Stare's requirements are documented in the Gorgon Stare Wide Area Airborne Sensor Capabilities Production Document (draft). The acquisition strategy for this Air Force podded sensor suite solution is sustainment of the currently fielded capabilities with any upgrades implemented via validated -1067s or Urgent Operational Needs.

Development efforts conducted with FY 2014 Congressionally added RDT&E funds included system integration lab testing of Near Vertical Direction Finding (NVDF) with Gorgon Stare Increment 2 Wide Area Motion Imagery (WAMI) sensors. Funds spent on NVDF will provide a ramp for future airborne integration efforts as required. Development efforts conducted with \$10M of FY 2015 Congressionally added funds include efforts focused on Beyond Line of Sight (BLOS) in support of an Urgent Operational Need. Development efforts conducted with \$10M of FY 2016 Congressionally added funds will continue the RDT&E efforts for persistent day and night wide-area motion imagery (WAMI) capability considered by operational commanders to be a critical ISR program for combat units.

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

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2015	FY 2016
Congressional Add: Beyond Line of Sight	10.000	-
FY 2015 Accomplishments: Developed BLOS capability to enable near-real time data dissemination without reliance on ground-based data link.		
Congressional Add: Wide-Area Motion Imagery	-	10.000
FY 2016 Plans: Continue development of a persistent day and night wide-area motion imagery (WAMI) capability by ensuring the engineering team is kept intact to develop a multi-INT capable wide-area surveillance system considered critical to operational commanders and combat units.		
Congressional Adds Subtotals	10.000	10.000

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305206F / Airborne Reconnaissance Systems	Project (Number/Name) 675291 / Gorgon Stare

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

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u> <u>Base</u>	<u>FY 2017</u> <u>OCO</u>	<u>FY 2017</u> <u>Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• APAF: BP16: Line Item # PRDTB3: MQ-9 UAS Payloads (Spares)	6.790	5.342	2.905	0.000	2.905	0.216	0.000	0.000	0.000	-	-

Remarks

D. Acquisition Strategy

The wide area airborne surveillance requirement is being delivered via the Gorgon Stare podded wide area motion imagery sensor suite integrated on dedicated, specially-modified MQ-9 Reaper RPAs. Gorgon Stare transitioned from a Quick Reaction Capability to an Air Force Enduring Capability under AFROC authority in November 2014. The program is executed by the 645th AESG as a post-MS C program. The sensor suite will be sustained in its current configuration. Any future capability upgrades will be fielded as a result of validated -1067s or Urgent Operational Needs.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305206F / Airborne Reconnaissance Systems	Project (Number/Name) 675291 / Gorgon Stare
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Beyond Line of Sight (BLOS)	SS/CPFF	Sierra Nevada Corporation : Sparks, NV	-	10.000	Feb 2016	0.000		0.000		0.000		0.000	0.000	10.000	0.000
WAMI	SS/CPFF	Sierra Nevada Corporation : Sparks, NV	-	0.000		10.000	Apr 2016	0.000		0.000		0.000	Continuing	Continuing	-
Subtotal			-	10.000		10.000		0.000		0.000		0.000	-	-	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

			Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	10.000	10.000	0.000	0.000	0.000	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305206F / <i>Airborne Reconnaissance Systems</i>	Project (Number/Name) 675291 / <i>Gorgon Stare</i>

	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Capability Transition Decision (Nov 2014)	█																											
Increment 2: final 3 podsets and ground equipment delivery	█																											
Pre-planned Product Improvement (airborne system, C2, tactical dissemination, processing)	█																											
NVDF / WAMI integration	█																											
Beyond Line of Sight	█																											

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305206F / <i>Airborne Reconnaissance Systems</i>	Project (Number/Name) 675291 / <i>Gorgon Stare</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Capability Transition Decision (Nov 2014)	1	2015	1	2015
Increment 2: final 3 podsets and ground equipment delivery	4	2015	4	2015
Pre-planned Product Improvement (airborne system, C2, tactical dissemination, processing)	1	2015	1	2015
NVDF / WAMI integration	3	2015	1	2018
Beyond Line of Sight	4	2015	4	2016

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305206F / Airborne Reconnaissance Systems	Project (Number/Name) 675292 / Hyperspectral Sensors
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
675292: Hyperspectral Sensors	-	3.546	2.679	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	6.225
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In FY 2017, PE 0305206F, Airborne Reconnaissance Systems, Project 675292, Hyperspectral Sensors, will be terminated.

A. Mission Description and Budget Item Justification

The Hyperspectral Sensors project develops Hyperspectral Imagery (HSI) sensors and capabilities for MQ-1 Remotely Piloted Aircraft (RPA) and other manned or unmanned aircraft. Within this project, the Airborne Cueing & Exploitation System-Hyperspectral (ACES HY) program helps to fulfill a portion of the sponsoring combatant command and Central Command's current HSI requirements. The ACES HY program developed sensors for the MQ-1B Predator Block 15 and included development of the required training, maintenance and fielding plans to support a working architecture.

Activities within this project also include studies and analysis supporting current and future program planning and tech development for advanced HSI sensors and capabilities, including high altitude HSI sensor developments per the HSI strategic roadmap.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Airborne Cueing & Exploitation System - Hyperspectral (ACES HY)	3.546	2.679	0.000	-	0.000
Description: Develop capability enhancements for the ACES HY sensor system. Provide support data to accompany sensors and modifications. Tech development supporting sensor improvements and possible integration on other platforms.					
FY 2015 Accomplishments:					
- Developed ACES HY upgrades, to include design development					
- Tested a new ACES HY high resolution camera to resolve image interpretability findings from Operational Test and Evaluation (OT&E).					
- Conducted preliminary and critical design reviews					
FY 2016 Plans:					
- Continue and complete high resolution camera development and test and prepare for camera production effort.					
- Design develop and test replacement ACES HY GPS/INS system element in response to supportability issues and operational requirements.					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305206F / Airborne Reconnaissance Systems	Project (Number/Name) 675292 / Hyperspectral Sensors

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
- Conduct preliminary and critical design reviews and build two units to support qualification testing.					
FY 2017 Base Plans: N/A					
Accomplishments/Planned Programs Subtotals	3.546	2.679	0.000	-	0.000

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• APAF: BA05: Line Item # PRDT01: MQ-1 Mods	4.755	3.173	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Remarks
A portion of the Predator modification funding listed above is used to support ACES HY integration.

D. Acquisition Strategy
ACES HY production sensor deliveries were completed in July of 2014, using the Advanced Technology Support Program process developed by Office of the Secretary of Defense (OSD)'s Defense MicroElectronics Activity (DMEA) at McClellan AFB, CA. Sensors are currently managed at AFLCMC/WILR, the MQ-1 Predator sustainment program office, Warner-Robbins AFB GA.

ACES HY utilizes a sole source Basic Ordering Agreement with Raytheon (McKinney, TX) for system modifications.

E. Performance Metrics
Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force												Date: February 2016				
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)								
3600 / 7				PE 0305206F / Airborne Reconnaissance Systems				675292 / Hyperspectral Sensors								
Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
HRI Upgrade	SS/CPFF	Raytheon : McKinney, TX	-	2.877	Jul 2015	1.490	Mar 2016	0.000		0.000		0.000	0.000	4.367	4.384	
Other Upgrade Efforts	Various	Various : TBD	-	0.000		0.534	Dec 2015	0.000		0.000		0.000	0.000	0.534	-	
Subtotal			-	2.877		2.024		0.000		0.000		0.000	0.000	4.901	-	
Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Engineering Support	SS/CPFF	MIT/LL : Cambridge, MA	-	0.195	May 2015	0.195	May 2016	0.000		0.000		0.000	0.000	0.390	-	
Subtotal			-	0.195		0.195		0.000		0.000		0.000	0.000	0.390	-	
Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Subtotal			-	-		-		-		-		-	-	-	-	
Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
PMA: Other Govt Cost	SS/T&M	Various : Dayton, OH	-	0.474	Jan 2015	0.460	Jan 2016	0.000		0.000		0.000	Continuing	Continuing	-	
Subtotal			-	0.474		0.460		0.000		0.000		0.000	-	-	-	
Project Cost Totals			-	3.546		2.679		0.000		0.000		0.000	-	-	-	

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force							Date: February 2016			
Appropriation/Budget Activity 3600 / 7			R-1 Program Element (Number/Name) PE 0305206F / <i>Airborne Reconnaissance Systems</i>			Project (Number/Name) 675292 / <i>Hyperspectral Sensors</i>				

	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
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<u>Remarks</u>									

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305206F / Airborne Reconnaissance Systems	Project (Number/Name) 675292 / Hyperspectral Sensors

	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Capability Upgrades	[REDACTED]																											
Enhanced HSI Processor Retrofit	[REDACTED]																											
HRI Camera Upgrade					[REDACTED]																							
GPS Upgrade Effort					[REDACTED]																							

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305206F / <i>Airborne Reconnaissance Systems</i>	Project (Number/Name) 675292 / <i>Hyperspectral Sensors</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Capability Upgrades	1	2015	4	2017
Enhanced HSI Processor Retrofit	1	2015	1	2016
HRI Camera Upgrade	4	2015	4	2017
GPS Upgrade Effort	4	2015	4	2017

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305206F / Airborne Reconnaissance Systems	Project (Number/Name) 676025 / Data Compression
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
676025: Data Compression	-	0.000	4.803	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.803
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In FY 2016, PE 0305208F, Distributed Common Ground/Surface Systems, Project 676025, Data Compression, efforts transferred to PE 0305206F, Airborne Reconnaissance Systems, Project 676025, Data Compression, in order to provide greater visibility into this capability.

In FY 2017, PE 0305206F, Airborne Reconnaissance Systems, Project 676025, Data Compression, efforts will transfer to PE 0604257F, Advanced Technology and Sensors, Project 646025, Data Compression, in order to provide greater visibility into this capability.

A. Mission Description and Budget Item Justification

The Data Compression effort provides the warfighter a capability to efficiently compress and decompress airborne ISR sensor data and transmit near real time to tactical users through current and future bandwidth limited commercial satellite communications (SATCOM) or military SATCOM. The effort is developing, testing and will implement new sensor data compression and decompression algorithms for current and emerging airborne ISR sensors. Additionally, the program develops compression and decompression capabilities for manned and unmanned airborne platforms, associated ground stations, and DCGS. Outputs will meet standard certification for use within the DoD GEOINT and MASINT architectures.

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

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Data Compression	0.000	4.803	0.000	-	0.000
Description: The Data Compression effort provides the warfighter a capability to efficiently compress and decompress airborne ISR sensor data and transmit near real time to tactical users through current and future bandwidth limited commercial satellite communications (SATCOM) or military SATCOM. The effort will develop, test and implement new sensor data compression and decompression algorithms for current and emerging airborne ISR sensors. Additionally, the program develops compression and decompression capabilities for manned and unmanned airborne platforms, associated ground stations, and DCGS. Outputs will meet standard certification for use within the DoD GEOINT and MASINT architectures.					
FY 2015 Accomplishments:					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305206F / Airborne Reconnaissance Systems	Project (Number/Name) 676025 / Data Compression

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>Prior to FY 2016, efforts were reported under PE 0305208F, Distributed Common Ground/Surface Systems, Project 676025, Data Compression.</p> <p>FY 2016 Plans:</p> <ul style="list-style-type: none"> - Develop and test Phase History SAR data compression capabilities, and other phenomenologies. - Develop and test compression and decompression algorithms for Persistent SAR and Smart Data Discrimination. - Develop documentation for standards acceptance. - Provide engineering services for algorithm familiarization, assessment, and improvement. - Participate in SOSA planning and integration. <p>FY 2017 Base Plans:</p> <p>FY 2017 activities will be reported under PE 0604257F, Advanced Technology and Sensors, Project 646025, Data Compression.</p>					
Accomplishments/Planned Programs Subtotals	0.000	4.803	0.000	-	0.000

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

N/A

Remarks

D. Acquisition Strategy

The Data Compression acquisition approach is to design and develop compression and decompression technology hardware and software components, interfaces and standards for various airborne ISR platforms, ground stations, data storage facilities, and exploitation tools utilizing existing contracts with full and open competition where appropriate. Integration will be accomplished by the requisite program offices.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305206F / Airborne Reconnaissance Systems	Project (Number/Name) 676025 / Data Compression
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Technology Development	C/Variou	TBD : TBD	-	0.000		1.520	Jul 2016	0.000		0.000		0.000	Continuing	Continuing	-
ISO Standards Development	C/Variou	NASA JPL : Pasadena, CA	-	0.000		0.366	Feb 2016	0.000		0.000		0.000	Continuing	Continuing	-
SAR Standards Development	C/Variou	TBD : TBD	-	0.000		0.384	Apr 2016	0.000		0.000		0.000	Continuing	Continuing	-
Platform Integration	C/Variou	TBD : TBD	-	0.000		0.200	Jul 2016	0.000		0.000		0.000	Continuing	Continuing	-
Subtotal			-	0.000		2.470		0.000		0.000		0.000	-	-	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Validation /Verification Support	C/Variou	AFRL : Dayton, OH	-	0.000		0.450	May 2016	0.000		0.000		0.000	Continuing	Continuing	-
Algorithm Support	C/Variou	Warner Robins AFB : Warner Robins, GA	-	0.000		0.100	Jan 2016	0.000		0.000		0.000	Continuing	Continuing	-
Subtotal			-	0.000		0.550		0.000		0.000		0.000	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
JPL Flight Demonstration	C/Variou	NASA JPL : Pasadena, CA	-	0.000		0.250	Feb 2016	0.000		0.000		0.000	Continuing	Continuing	-
HSI Demonstration	C/Variou	TBD : TBD	-	0.000		0.250	Feb 2016	0.000		0.000		0.000	Continuing	Continuing	-
Technology Demonstration	C/Variou	TBD : TBD	-	0.000		0.500	May 2016	0.000		0.000		0.000	Continuing	Continuing	-
Subtotal			-	0.000		1.000		0.000		0.000		0.000	-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305206F / Airborne Reconnaissance Systems	Project (Number/Name) 676025 / Data Compression
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Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Office Support	Various	Govt/Contractors : TBD	-	0.000		0.783	Oct 2015	0.000		0.000		0.000	Continuing	Continuing	-
Subtotal			-	0.000		0.783		0.000		0.000		0.000	-	-	-
Project Cost Totals			-	0.000		4.803		0.000		0.000		0.000	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305206F / Airborne Reconnaissance Systems	Project (Number/Name) 676025 / Data Compression

	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
SARZip Demonstration					██████████																							
HSI Compression Demonstration					██████████																							
Phase History SAR Development					██████████																							
Persistent EO/IR Development					██████████																							
Phase History Demonstration																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305206F / <i>Airborne Reconnaissance Systems</i>	Project (Number/Name) 676025 / <i>Data Compression</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
SARZip Demonstration	1	2016	3	2016
HSI Compression Demonstration	1	2016	4	2016
Phase History SAR Development	1	2016	4	2016
Persistent EO/IR Development	1	2016	4	2016
Phase History Demonstration	4	2016	4	2016

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0305207F / <i>Manned Reconnaissance Systems</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	-	14.116	13.245	20.975	0.000	20.975	14.228	14.324	14.589	14.848	Continuing	Continuing
674754: <i>RC-135 Systems</i>	-	14.116	13.245	20.975	0.000	20.975	14.228	14.324	14.589	14.848	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The RC-135 operational systems development and enhancement activities support the 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. Associated ground systems include RIVET JOINT Mission Trainers (RJMT, a.k.a. mission crew simulators), Ground Data Processing Systems (GDPS), Distributed Mission Shelters (DMS), Mission Crew Training Systems (MCTS), Airborne Capabilities Extension System (ACES), and the Operational Flight Trainers (OFT, a.k.a. flight deck simulators). Extensive utilization of Commercial-Off-The-Shelf (COTS) based solutions allows rapid fielding of needed capabilities through upgrades and supports Diminishing Manufacturing Sources (DMS)/Vanishing Vendor Items (VVI) 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 (645 AESG). The 645 AESG (a.k.a. BIG SAFARI Systems Program Office or SPO) manages engineering, ground and support systems modifications, integration, flight testing, product assurance, acceptance testing, logistics, and training activities.

Aircraft, sensor systems, and associated ground support system engineering planned for FY 2017 budget includes developmental planning, execution and support for the RC-135V/W RIVET JOINT Baselines 12 and 13, the RC-135U COMBAT SENT Baselines 5 and 6, and the RC-135S COBRA BALL Baseline 5 and 6 configurations. 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 incremental spiral upgrades and baseline capabilities that are logistically supportable at all locations. The BIG SAFARI SPO uses an incremental baseline strategy to mitigate risk, find affordable solutions and field needed capabilities on the aircraft and associated ground support and training systems. Obsolescence and DMS/VVI logistical concerns are addressed with each baseline upgrade strategy and assessed annually as part of the fleet sustainment responsibilities.

RIVET JOINT Baseline 12 upgrades consist of, but are not limited to, increased digital signal exploitation, increased digital signal recorder bandwidth, enhanced spatial processing/exploitation, enhanced weather radar, digitally enhanced electronic flight instrument system (EFIS), continued Communications, Navigation and Surveillance/Air Traffic Management (CNS/ATM) and Required Navigational Performance (RNP) compliant cockpit avionics enhancements, Air Force Distributed Common Ground System (AF-DCGS) interoperability, operator work station 3-D map projection, enhanced operator reporting management tools, modernized communications security (COMSEC) protocols, and a new steerable beam antenna. RIVET JOINT Baseline 13 upgrades consist of, but are not limited to, providing a continuous recording capability, Super Wideband Compressive Receiver (SWCR) and Nyquist Folding Receiver (NYFR), global air traffic management (GATM) avionics upgrades such

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0305207F / <i>Manned Reconnaissance Systems</i>	
<p>as new autopilot, automated data system-broadcast (ADS-B) and Mode 5 identify friendly or foe (IFF) systems, and family of beyond-line-of-sight terminals (FAB-T) advanced extremely high frequency (AEHF) communications suite.</p> <p>COMBAT SENT Baseline 5 upgrades consist of, but are not limited to, active ranging and theater networked geo-location (TNG) capability, Proforma search and classification tools, cooling duct and lighting improvements, CORVUS related precision electronic intelligence (ELINT) SWCR enhancements, RJ Baseline 13 communications intelligence (COMINT), upgraded computer architecture, primary sensor measurement system (PRISMS), wideband global satellite (WGS) communications enhanced integration, development of an airborne tracking system, communications upgrade to include Multifunctional Information Distribution System Joint Tactical Radio System (MIDS-J), and continued Communications, Navigation and Surveillance/Air Traffic Management (CNS/ATM) and Required Navigational Performance (RNP) compliant cockpit avionics enhancements. COMBAT SENT Baseline 6 developmental enhancements consist of, but are not limited to, steerable beams for the COMINT sub-system, improved SWCR capability and specific emitter ID/SET ELINT sub-system, PRISMS merge with manual precision collections, millimeter wave and low band capabilities with PRISMS, digitizing antennas, direction finding of High Frequency signals and expanded streaming audio services and 360 degree aircraft tracking system.</p> <p>COBRA BALL Baseline 5 upgrades consist of, but are not limited to, RJ Baseline 11 COMINT, Medium-Wave Infra-Red Acquisition (MIRA) sensor/processor upgrade, measurements and signature intelligence (MASINT) Collection System (MCS) optical upgrade, WGS communications enhanced integration, communications upgrades to include MIDS-J and an intercom system (FORCE), U-Band antenna, continued CNS/ATM and RNP compliant cockpit avionics enhancements, and foreign instrumentation intelligence (FISINT) system refresh. COBRA BALL Baseline 6 developmental enhancements consist of, but are not limited to, high gain S-Band antenna, large format Sapphire windows, RJ Baseline 13 COMINT capability, FISINT analog to digital receiver, and Brave version of the digital cockpit avionics systems to continue CNS/ATM and RNP compliance initiatives.</p> <p>Activities also include studies and analysis to support both current program planning and execution and future program planning.</p> <p>This program is in Budget Activity 7, Operational Systems Development, because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production fielding in the current or subsequent fiscal year.</p>		

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0305207F / <i>Manned Reconnaissance Systems</i>
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B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	13.516	13.245	14.184	0.000	14.184
Current President's Budget	14.116	13.245	20.975	0.000	20.975
Total Adjustments	0.600	0.000	6.791	0.000	6.791
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.600	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	6.791	0.000	6.791

Change Summary Explanation

FY 2015 funding total includes a Below Threshold Reprogramming of \$600K for Caldera Event technology.

FY 2017 funding total includes 1) a \$7.0M USD/I Add specifically for COMBAT SENT Baseline upgrade shortfall, and 2) a \$209K reduction for inflation rates leading to an overall increase of \$6.791M.

C. Accomplishments/Planned Programs (\$ in Millions)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Baseline Configuration Development	14.116	13.245	20.975	0.000	20.975
Description: Non-recurring engineering (NRE) for Baseline system developments and enhancements to improve mission capabilities of the RIVET JOINT Baselines 12 and 13 (BL-12 and BL-13), COMBAT SENT Baselines 5 and 6 (BL-5 and BL-6) and COBRA BALL Baselines 5 and 6 (BL-5 and BL-6)					
FY 2015 Accomplishments:					
<ul style="list-style-type: none"> • Continued Design Studies • Continued Engineering Analysis • Continued Non-Recurring Engineering (NRE) and other efforts associated with the integration and modification of the RC-135 primary mission equipment • Continued Specialized Mission Systems development for the collection of both air and ground signals to include conducting a limited objective, quick reaction capable-like experiment of the emerging Caldera Event technology on a currently deployed mission aircraft in the PACOM area of responsibility 					
FY 2016 Plans:					

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0305207F / <i>Manned Reconnaissance Systems</i>	

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<ul style="list-style-type: none"> • Will continue Design Studies • Will continue Engineering Analysis • Will continue Non-Recurring Engineering (NRE) and other efforts associated with the integration and modification of the RC-135 primary mission equipment • Will continue Specialized Mission Systems development for the collection of both air and ground signals to include assessing the mission impact analysis of the Caldera Event technology demonstrated in FY 2015 <p>FY 2017 Base Plans: Will initiate new contracts to:</p> <ul style="list-style-type: none"> • Continue Engineering Analysis • Continue Non-Recurring Engineering (NRE) and other efforts associated with the integration and modification of the RC-135 primary mission equipment • Continue Specialized Mission Systems development for the collection of both air and ground signals. <p>FY 2017 OCO Plans: N/A</p>					
Accomplishments/Planned Programs Subtotals	14.116	13.245	20.975	0.000	20.975

D. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• APAF: BA05: DARP01: <i>Modification of Inservice Aircraft</i>	163.346	165.715	211.438	0.000	211.438	201.237	184.779	188.189	191.658	Continuing	Continuing
• APAF: BA06: DARP01: <i>Aircraft Spares and Repair Parts</i>	57.119	51.958	47.734	0.000	47.734	49.396	49.927	50.848	51.785	Continuing	Continuing
• OPAF: BA04: 846070: <i>Defense Airborne Recce Projects (DARP) RC-135</i>	24.710	25.072	25.287	0.000	25.287	25.739	26.191	26.653	27.132	Continuing	Continuing
• RDT&E: BA07: PE 0304260F: <i>RC-135 Airborne SIGINT Enterprise Development</i>	15.007	41.846	39.756	0.000	39.756	59.535	50.938	40.984	42.509	Continuing	Continuing

Remarks

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force Date: February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0305207F / <i>Manned Reconnaissance Systems</i>
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E. Acquisition Strategy
The RC-135 RIVET JOINT, COBRA BALL, and COMBAT SENT configured aircraft are maintained and kept technologically relevant through a baseline or incremental upgrade acquisition strategy. Technology upgrades and quick reaction capability (QRC) developments are acquired through the 645th Aeronautical Systems Group (AESG) in accordance with the BIG SAFARI Program Management Directive (PMD) and Class Justification and Approval (J&A) document for acquisition of supplies and services using an "other than full and open competition" criteria. The supplies and services procured by 645 AESG satisfy National Security requirements (FAR 6.302-6) through the use of their standing J&A or address Unusual and Compelling Urgency requirements (FAR 6.302-2) through an individually prepared J&A supported by the BIG SAFARI Life Cycle Management Plan (LCMP) across the full spectrum of system life cycle management from developmental engineering to system retirement ("cradle to grave") support. Due to the ever changing threat and rapidly evolving electromagnetic combat environment encountered during our prolonged commitment to Overseas Contingency Operations (OCO) and the global war on terrorism, the acquisition program manager has the authority to redirect funding as necessary to meet current stated and emerging Combatant Commander (CCMD) and/or Intelligence Community (IC) requirements to better meet the war fighting objectives.

F. Performance Metrics
Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305207F / <i>Manned Reconnaissance Systems</i>	Project (Number/Name) 674754 / <i>RC-135 Systems</i>
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Aircraft Modifications	SS/ Various	L-3 Com : Greenville, TX	-	14.116	Dec 2014	13.245	Dec 2015	20.975	Dec 2016	0.000		20.975	Continuing	Continuing	TBD
Subtotal			-	14.116		13.245		20.975		0.000		20.975	-	-	-

Remarks
All activity is based around the Programmed Depot Maintenance (PDM) airframe and missions systems schedule which includes multiple contracts and organizations with overlapping and continuous periods of performance. Due to the rapidly changing threat environment encountered during our prolonged commitment to Overseas Contingency Operations (OCO), the acquisition program manager has the authority to redirect funding as necessary to meet current stated and emerging CCMD and/or IC requirements.

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

			Prior Years	FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	14.116	13.245	20.975		0.000		20.975	-	-	-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305207F / <i>Manned Reconnaissance Systems</i>	Project (Number/Name) 674754 / <i>RC-135 Systems</i>
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	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
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Remarks
 RC-135 Program Manager has determined that programmed management administration (PMA) cost will be funded with RIVET JOINT APAF appropriation and included in the DARP01 P-Doc, Mod 4263.

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305207F / <i>Manned Reconnaissance Systems</i>	Project (Number/Name) 674754 / <i>RC-135 Systems</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
RIVET JOINT Baseline 11 Integration, Test and Fielding	1	2015	2	2017
RIVET JOINT Baseline 12 Development	1	2015	2	2016
RIVET JOINT Baseline 12 Integration, Test and Fielding	2	2016	2	2020
RIVET JOINT Baseline 13 Development	2	2017	4	2018
RIVET JOINT Baseline 13 Integration, Test and Fielding	1	2019	4	2021
COMBAT SENT Baseline 5 Integration, Test and Fielding	1	2015	2	2018
COMBAT SENT Baseline 6 Development	2	2018	2	2020
COMBAT SENT Baseline 6 Integration, Test and Fielding	2	2020	4	2021
COBRA BALL Baseline 5 Integration, Test and Fielding	1	2015	4	2019
COBRA BALL Baseline 6 Development	1	2018	1	2020
COBRA BALL Baseline 6 Integration, Test and Fielding	1	2020	4	2021
Ground Systems Baseline 11 Integration, Test and Fielding	1	2015	1	2018
Ground Systems Baseline 12 Integration, Test and Fielding	1	2018	1	2021
Ground Systems Baseline 13 Development, Integration, Test and Fielding	1	2021	4	2021

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0305208F / <i>Distributed Common Ground/Surface Systems</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	-	26.993	22.686	18.902	0.000	18.902	26.422	22.143	22.554	22.954	Continuing	Continuing
674826: <i>Common Imagery Ground / Surface Systems</i>	-	19.482	22.686	18.902	0.000	18.902	26.422	22.143	22.554	22.954	Continuing	Continuing
676025: <i>Data Compression</i>	-	7.511	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	7.511

A. Mission Description and Budget Item Justification

Air Force Distributed Common Ground System (AF DCGS) is the Combat Air Force (CAF) weapon system architecture for planning and direction, collection, processing and exploitation, analysis and production, and dissemination (PCPAD) of data from Intelligence, Surveillance, and Reconnaissance (ISR) missions. Since AF DCGS is also a major component of the DoD DCGS, the system is designed to complement and interoperate with the DoD, Army, Navy and Marine Corps DCGS. The AF DCGS mission is to provide Joint Task Force (JTF) Commanders, Air Component Commanders, Unified Commands, and other directed organizations with global, time-sensitive ISR PCPAD across the spectrum of military operations. AF DCGS is a multi-INT network linked weapon system (AN/GSQ-272) capable of exploiting intelligence data from manned platforms, remotely piloted aircraft (RPA), non-traditional ISR platforms, national and commercial satellites, and other collection systems. AF DCGS is designed to support joint operational requirements by providing a common PCPAD means to provide time-sensitive intelligence to field commanders and in support of the Air Operations Center (AOC) mission requirements. Currently, the AF DCGS worldwide architecture is composed of two worldwide core sites, three regional core sites, two remote Air Force Forces (AF FOR) sites, four National Mission Partner (NMP) sites, three support sites, and multiple National Guard Bureau (NGB) sites. Currently, AF DCGS is supporting ongoing operations from forward deployed and in-garrison CONUS and OCONUS based locations. The system employs a concept of data distribution, information sharing and collaborative work centers. AF DCGS provides the national leadership and the warfighter with integrated and interoperable national and airborne reconnaissance by providing quality and fused Signals Intelligence (SIGINT), Measurement and Signature Intelligence (MASINT), and Geospatial Intelligence (GEOINT) tailored to the warfighter for all levels of conflict.

AF DCGS is transforming by integrating the necessary technologies and tools to provide increased capabilities and meet emerging and urgent operational needs. These efforts will also integrate commercial-off-the-shelf and government-off-the-shelf upgrades to provide current technologies and achieve necessary application services. The next series of upgrades will meet the operational need to integrate new and/or improved sensor capabilities, as well as enhance interoperability by migrating to an Open Architecture (OA) to improve data sharing ability per DoD direction.

The DCGS Data Compression effort provides the warfighter a capability to efficiently compress and decompress airborne ISR sensor data and transmit near real-time to tactical users through current and future bandwidth limited commercial satellite communications (SATCOM) or military SATCOM. The effort will develop, test and implement new sensor data compression and decompression algorithms for current and emerging airborne ISR sensors. Additionally, the program develops compression and decompression capabilities for manned and unmanned airborne platforms, associated ground stations, and DCGS. Outputs will meet standard certification for use within the DoD GEOINT and MASINT architectures.

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

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0305208F / <i>Distributed Common Ground/Surface Systems</i>
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The FY 2017 funding request was reduced by \$2.785 million to account for the availability of prior year execution balances.

This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	26.994	22.784	21.687	0.000	21.687
Current President's Budget	26.993	22.686	18.902	0.000	18.902
Total Adjustments	-0.001	-0.098	-2.785	0.000	-2.785
• Congressional General Reductions	0.000	-0.098			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	-0.001	0.000	-2.785	0.000	-2.785

Change Summary Explanation

The FY 2017 funding request was reduced by \$2.785 million to account for the availability of prior year execution balances.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force										Date: February 2016		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0305208F / <i>Distributed Common Ground/Surface Systems</i>				Project (Number/Name) 674826 / <i>Common Imagery Ground / Surface Systems</i>			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
674826: <i>Common Imagery Ground / Surface Systems</i>	-	19.482	22.686	18.902	0.000	18.902	26.422	22.143	22.554	22.954	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Air Force Distributed Common Ground System (AF DCGS) is the Combat Air Force (CAF) weapon system architecture for planning and direction, collection, processing and exploitation, analysis and production, and dissemination (PCPAD) of data from Intelligence, Surveillance, and Reconnaissance (ISR) missions. Since AF DCGS is also a major component of the DoD DCGS, the system is designed to complement and interoperate with the DoD, Army, Navy and Marine Corps DCGS. The AF DCGS mission is to provide Joint Task Force (JTF) Commanders, Air Component Commanders, Unified Commands, and other directed organizations with global, time-sensitive ISR PCPAD across the spectrum of military operations. AF DCGS is a multi-INT network linked weapon system (AN/GSQ-272) capable of exploiting intelligence data from manned platforms, remotely piloted aircraft (RPA), non-traditional ISR platforms, national and commercial satellites, and other collection systems. AF DCGS is designed to support joint operational requirements by providing a common PCPAD means to provide time-sensitive intelligence to field commanders and in support of the Air Operations Center (AOC) mission requirements. Currently, the AF DCGS worldwide architecture is composed of two worldwide core sites, three regional core sites, two remote Air Force Forces (AF FOR) sites, four National Mission Partner (NMP) sites, three support sites, and multiple National Guard Bureau (NGB) sites. Currently, AF DCGS is supporting ongoing operations from forward deployed and in-garrison CONUS and OCONUS based locations. The system employs a concept of data distribution, information sharing and collaborative work centers. AF DCGS provides the national leadership and the warfighter with integrated and interoperable national and airborne reconnaissance by providing quality and fused Signals Intelligence (SIGINT), Measurement and Signature Intelligence (MASINT), and Geospatial Intelligence (GEOINT) tailored to the warfighter for all levels of conflict.

AF DCGS is transforming by integrating the necessary technologies and tools to provide increased capabilities and meet emerging and urgent operational needs. These efforts will also integrate commercial-off-the-shelf and government-off-the-shelf upgrades to provide current technologies and achieve necessary application services. The next series of upgrades will meet the operational need to integrate new and/or improved sensor capabilities, as well as enhance interoperability by migrating to an Open Architecture (OA) to improve data sharing ability per DoD direction.

AF DCGS was previously managed by four primary efforts: Geospatial Intelligence-1, Systems Release-1 (SIGINT Intelligence), Net Comms-1 (Network/Comm Infrastructure), and Data Links-1. Beginning in FY16, to better align with ACC focus areas and required operational capabilities, AF DCGS management has evolved into eight efforts consisting of: GEOINT (GB 4.1), GEOINT Transformation-1, Systems Release (SR 3.0), SIGINT Transformation-1, Sensor Integration-1, Multi-INT-1, Network Infrastructure Transformation-1, and DCGS Reference Imagery Transition (DRT):

1. *GB 4.1: The GEOINT Baseline 4.1 (GB4.1) effort completes the Bulk Release process and provides a common baseline across the weapon system. It also integrates Airborne Cuing and Exploitation System, Hyper Spectral ACES-HY (MQ-1) and Global Hawk (GH) Block 40 capability into AF DCGS.
2. GEOINT Transformation-1: The GEOINT Transformation effort rapidly integrates new capabilities and migrates GEOINT-specific applications & capabilities into the open architecture framework.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305208F / <i>Distributed Common Ground/Surface Systems</i>	Project (Number/Name) 674826 / <i>Common Imagery Ground / Surface Systems</i>
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- 3. *SR 3.0: The Systems Release (3.0) effort completes SIGINT Bulk Release process and provides a common baseline across the weapon system. Provides the ability to TPED the Airborne Signals Intelligence Payload (ASIP) family of systems and integrates the Common Intelligence Collections System (CICS) capability.
- 4. SIGINT Transformation-1: Rapidly integrate new capabilities, leverage mission partner methods and tools, exchange data, and migrate the SIGINT-specific applications/capabilities into the open architecture framework.
- 5. Sensor Integration-1: The Sensor Integration effort rapidly integrates AF, Joint, & Coalition Sensor data into DCGS Enterprise to ingest data, perform sensor planning, and Command & Control.
- 6. Multi-INT-1: Provides and supports Open Architecture (OA)-based Enterprise Services, moves to commodity hardware, a virtual desktop environment, and facilitates enterprise-wide collaborative tools.
- 7. Network Infrastructure Transformation-1: The Infrastructure Transformation effort modernizes the AF DCGS infrastructure to improve data ingest, transfer, and storage capabilities while migrating the network toward a cloud architecture.
- 8.*DRT: The Air Force DCGS Reference Imagery Transition (DRT) effort provides data ingest, transfer, and storage capabilities for NGA reference imagery data.

NOTES:
 In FY15: GEOINT-1 and SR-1 did not have any associated RDT&E funding. The Other Procurement Air Force (OPAF) funding is exhibited in the Procurement Documentation.
 *For FY16-FY17, this effort does not have any associated RDT&E funding. The Other Procurement Air Force (OPAF) funding is exhibited in the Procurement Documentation.

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
<p>Title: Network Communications.</p> <p>Description: The NetComms-1 ACAT III program provided the following: modification of AF DCGS infrastructure to improve data ingest, transfer, and storage capabilities while migrating the network toward a cloud architecture.</p> <p>FY 2015 Accomplishments:</p> <ul style="list-style-type: none"> 1. Conducted analysis of next generation network protocol alternatives to replace current ATM network due to end of life, end of supply vendor support. 2. Developed and delivered DCGS Weapon System Trainer allowing training external to live missions across at each DCGS site. 3. Developed and integrated Enterprise Services to enable OA integration for available applications 4. Delivered OA DCGS Risk Reduction prototype providing new architecture, governance and methodology for the AF DCGS weapon system. 	18.782	-	-
<p>Title: Datalinks</p>	0.700	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016		
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305208F / <i>Distributed Common Ground/Surface Systems</i>	Project (Number/Name) 674826 / <i>Common Imagery Ground / Surface Systems</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2015	FY 2016	FY 2017
<p>Description: The Data Links segment provides Line-of-Site (LOS) and Satellite Communications (SATCOM) capabilities that allow AF DCGS to send and receive information between airborne ISR assets and the AF DCGS weapon system.</p> <p>FY 2015 Accomplishments: 1. Supported all test and evaluation activities for the Air Force DCGS weapons system.</p>				
<p>Title: SIGINT Transformation</p> <p>Description: The Signal Intelligence (SIGINT) Transformation effort rapidly integrates new capabilities, leverage mission partner methods and tools, exchange data, and migrate the SIGINT-specific applications/capabilities into the open architecture framework.</p> <p>FY 2016 Plans: 1. Develop connectivity directly to NSANET leveraging national SIGINT and the current AF DCGS System Release 3.0 (SR3) baseline architecture to improve the tactical SIGINT available to the warfighter. 2. Integrate current SIGINT specific software applications to the Virtual Desktop Environment, providing expandability for multi-INT in the future.</p> <p>FY 2017 Plans: 1. Will continue to develop and integrate connectivity directly to NSANET leveraging national SIGINT and the System Release 3.0 (SR3.0) architecture to improve the tactical SIGINT available to the warfighter</p>		-	13.425	7.987
<p>Title: Multi-INT Transformation</p> <p>Description: Provides and supports Open Architecture-based Enterprise Services, moves to commodity hardware, a virtual desktop environment, and facilitates enterprise-wide collaborative tools.</p> <p>FY 2016 Plans: 1. Support for all projects' test and evaluation activities for the Air Force DCGS weapons system.</p> <p>FY 2017 Plans: 1. Will provide support for all projects' test and evaluation activities for the Air Force DCGS weapons system.</p>		-	0.700	0.700
<p>Title: Sensor Integration</p> <p>Description: Rapidly integrate AF, Joint, & Coalition Sensor data into DCGS Enterprise to ingest data, perform sensor planning, and Command & Control.</p>		-	2.060	5.291

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305208F / <i>Distributed Common Ground/Surface Systems</i>	Project (Number/Name) 674826 / <i>Common Imagery Ground / Surface Systems</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
FY 2016 Plans: 1. Will provide engineering support for new sensor integration.			
FY 2017 Plans: 1. Will integrate new GH sensor capabilities and other emerging sensors into the AF DCGS weapon system.			
Title: Network Infrastructure Transformation Description: The Network Infrastructure Transformation effort modernizes the AF DCGS infrastructure to improve data ingest, transfer, and storage capabilities while migrating the network toward a cloud architecture. Furthermore, the Infrastructure Transformation program adds capabilities to the baseline of the FOC weapon system already fielded and does not replace it. FY 2016 Plans: 1. Continue risk reduction, integration, and deployment activities for OA DCGS 2. Migrate GH imagery data into the DCGS Storage & Dissemination architecture, and Integrate improved Global Hawk sensor capability. FY 2017 Plans: 1. Will continue integration & deployment activities for OA DCGS	-	6.501	4.924
Accomplishments/Planned Programs Subtotals	19.482	22.686	18.902

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u> <u>Base</u>	<u>FY 2017</u> <u>OCO</u>	<u>FY 2017</u> <u>Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• OPAF: BA07: Line Item #: 846080: DCGS-AF	181.556	145.202	139.334	0.000	139.334	144.848	136.073	128.234	130.541	Continuing	Continuing

Remarks

D. Acquisition Strategy

The AF DCGS acquisition strategy is to transition the weapon system to an open hardware and software architecture. Also, the strategy leverages approved lean and agile industry practices to increase delivery cycles and incorporates remote installation capabilities to speed up the installation tempo.

Contracting strategy involves a combination of Basic Ordering Agreements (BOAs), Indefinite Delivery/Indefinite Quantity (IDIQ) contracts awarded to execute program funds and delivery/task orders are negotiated/awarded individually.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305208F / <i>Distributed Common Ground/Surface Systems</i>	Project (Number/Name) 674826 / <i>Common Imagery Ground / Surface Systems</i>

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305208F / <i>Distributed Common Ground/Surface Systems</i>	Project (Number/Name) 674826 / <i>Common Imagery Ground / Surface Systems</i>
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Network Comm	Various	Various : Various	-	15.282	Feb 2015	0.000		0.000		0.000		0.000	Continuing	Continuing	-
Sensor Integration	Various	Various : Various	-	0.000		1.500	Feb 2016	4.731	Apr 2017	0.000		4.731	Continuing	Continuing	-
Network Infrastructure Transformation	Various	Various : Various	-	0.000		4.652	Mar 2016	3.075	May 2017	0.000		3.075	Continuing	Continuing	-
SIGINT Transformation	Various	Various : Various	-	0.000		12.334	Mar 2016	6.896	Feb 2017	0.000		6.896	Continuing	Continuing	-
Subtotal			-	15.282		18.486		14.702		0.000		14.702	-	-	-

Remarks
 Note on "various" entries - Contract Method, Contract Type, Performing Activity, Target Value of Contract are entered as "various" because there are multiple projects within in each upgrade and depending on the type of effort to be completed determines the contract vehicle to use. There is no way on this document to delineate the contracts that support each upgrade as they are numerous.

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Data Links - Test Support	Various	Various : Various	-	0.700	Mar 2015	0.000		0.000		0.000		0.000	Continuing	Continuing	-
Multi-Int - Test Support	Various	Various : Various	-	0.000		0.700	Mar 2016	0.700	Mar 2017	0.000		0.700	Continuing	Continuing	-
Subtotal			-	0.700		0.700		0.700		0.000		0.700	-	-	-

Remarks
 Note on "various" entries - Contract Method, Contract Type, Performing Activity, Target Value of Contract are entered as "various" because there are multiple projects within in each upgrade and depending on the type of effort to be completed determines the contract vehicle to use. There is no way on this document to delineate the contracts that support each upgrade as they are numerous.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305208F / <i>Distributed Common Ground/Surface Systems</i>	Project (Number/Name) 674826 / <i>Common Imagery Ground / Surface Systems</i>
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Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
PMA	Various	Various : Various	-	3.500	Sep 2015	3.500	Sep 2016	3.500	Sep 2017	0.000		3.500	Continuing	Continuing	-
Subtotal			-	3.500		3.500		3.500		0.000		3.500	-	-	-

Remarks
 Note on "various" entries - Contract Method, Contract Type, Performing Activity, Target Value of Contract are entered as "various" because there are multiple projects within in each upgrade and depending on the type of effort to be completed determines the contract vehicle to use. There is no way on this document to delineate the contracts that support each upgrade as they are numerous.

	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	19.482	22.686	18.902	0.000	18.902	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305208F / <i>Distributed Common Ground/Surface Systems</i>	Project (Number/Name) 674826 / <i>Common Imagery Ground / Surface Systems</i>

	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Network Comm – 1. ATM replacement	██████████																											
Network Comm – 2. Weapon System Trainer					████████████████████																							
Network Comm – 3. Enterprise Services	██████████████████																											
Network Comm – 4. OA DCGS RR	██████████████████																											
SIGINT Transformation – 1. NSANET Integration					██																							
SIGINT Transformation - 2. Virtual Desktop Environment					██████████████████████████████████████																							
Sensor Integration – 1. GH Sensor Integration									██																			
Network Infrastructure Transformation – 1. OA DCGS	██████████████████████████████████████																											
Network Infrastructure Transformation – 2. GH Imagery Storage					██████████████████																							

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305208F / <i>Distributed Common Ground/Surface Systems</i>	Project (Number/Name) 674826 / <i>Common Imagery Ground / Surface Systems</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Network Comm – 1. ATM replacement	1	2015	3	2015
Network Comm – 2. Weapon System Trainer	3	2015	4	2016
Network Comm – 3. Enterprise Services	2	2015	2	2016
Network Comm – 4. OA DCGS RR	2	2015	2	2016
SIGINT Transformation – 1. NSANET Integration	2	2016	3	2018
SIGINT Transformation - 2. Virtual Desktop Environment	2	2016	3	2017
Sensor Integration – 1. GH Sensor Integration	1	2017	4	2019
Network Infrastructure Transformation – 1. OA DCGS	2	2015	3	2016
Network Infrastructure Transformation – 2. GH Imagery Storage	2	2016	4	2016

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305208F / <i>Distributed Common Ground/Surface Systems</i>	Project (Number/Name) 676025 / <i>Data Compression</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
676025: <i>Data Compression</i>	-	7.511	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	7.511
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

This initiative will provide the warfighter a capability to efficiently compress and decompress airborne ISR sensor data and transmit near real-time to tactical users through current and future bandwidth limited commercial SATCOM or military SATCOM. The effort will develop, test and implement new sensor data compression and decompression algorithms for current and emerging airborne ISR sensors. Additionally, the program develops compression and decompression for manned and unmanned airborne platforms, associated ground stations, data storage and the DCGS. The effort includes life-cycle systems engineering of airborne hardware & software including updates and integration support. Algorithms will be suitable for service-wide use within the DoD GEOINT and MASINT architectures as part of ISR enterprise standards.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2015	FY 2016	FY 2017
Title: Data Compression	7.511	-	-
Description: The program began developing and testing compression and decompression algorithms for airborne ISR sensor data. The program will eventually build, integrate and test sensor specific hardware (with the algorithms embedded) for onboard data compression. The effort initially focused on compression and decompression of complex and detected Synthetic Aperture Radar (SAR) data followed by applications of compression technologies to other DoD IMINT/MASINT sensor data (Spectral, Electro-Optical/Infrared (EO/IR), Phase History SAR) and ground architecture. Algorithms will be suitable for service-wide use as part of ISR enterprise standards.			
NOTE: In FY16, PE 0305208F, Distributed Common Ground/Surface Systems, Project 676025, Data Compression, was transferred to PE 0305206F, Airborne Reconnaissance System, Project 676025, Data Compression, to better align the program with like RDT&E efforts.			
FY 2015 Accomplishments: - Increased development and testing of complex/detected SAR, spectral (HSI/MSI), Persistent EO/IR data compression capabilities, and other phenomenologies. - Began developing and testing compression and decompression algorithms for Phase History SAR. - Began cooperative platform integration in support of technology demonstrations.			
Accomplishments/Planned Programs Subtotals	7.511	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305208F / <i>Distributed Common Ground/Surface Systems</i>	Project (Number/Name) 676025 / <i>Data Compression</i>

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

N/A

Remarks

D. Acquisition Strategy

The Data Compression acquisition approach is to design and develop compression and decompression technology hardware and software components, interfaces and standards for various airborne ISR platforms, ground stations, data storage facilities, and exploitation tools utilizing existing contracts with full and open competition where appropriate. Integration will be accomplished by the requisite program offices with data compression specific modification to support demonstration activities.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305208F / <i>Distributed Common Ground/Surface Systems</i>	Project (Number/Name) 676025 / <i>Data Compression</i>
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Phase History Development	C/CPFF	KEYW : Severn, MD	-	4.300	Apr 2015	0.000		0.000		0.000		0.000	0.000	4.300	-
Standards Development	Various	NASA JPL : Pasadena, CA	-	0.020	Feb 2016	0.000		0.000		0.000		0.000	Continuing	Continuing	-
Subtotal			-	4.320		0.000		0.000		0.000		0.000	-	-	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Validation/Verification Support	MIPR	Warner Robins AFB : Warner Robins, GA	-	0.059	Aug 2015	0.000		0.000		0.000		0.000	Continuing	Continuing	-
CST Demonstration Support	MIPR	AFRL : Dayton, OH	-	1.045	Aug 2015	0.000		0.000		0.000		0.000	Continuing	Continuing	-
Subtotal			-	1.104		0.000		0.000		0.000		0.000	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
STARLite SAR Demonstration	MIPR	Army : Yuma, AZ	-	0.125	Feb 2015	0.000		0.000		0.000		0.000	Continuing	Continuing	-
SARZip Demonstration	C/TBD	Leidos : Reston, VA	-	0.400	Aug 2015	0.000		0.000		0.000		0.000	Continuing	Continuing	-
Technology Demonstration	C/Various	TBD : TBD	-	0.697	Sep 2015	0.000		0.000		0.000		0.000	Continuing	Continuing	-
Subtotal			-	1.222		0.000		0.000		0.000		0.000	-	-	-

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305208F / <i>Distributed Common Ground/Surface Systems</i>	Project (Number/Name) 676025 / <i>Data Compression</i>

	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
STARLite SAR Demonstration	██████████																											
Phase History Development					██████████																							
SARZip Demonstration									██████████																			
HSI Compression Demonstration					██████████																							

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305208F / <i>Distributed Common Ground/Surface Systems</i>	Project (Number/Name) 676025 / <i>Data Compression</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
STARLite SAR Demonstration	2	2015	4	2015
Phase History Development	3	2015	4	2015
SARZip Demonstration	4	2015	4	2015
HSI Compression Demonstration	4	2015	4	2015

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0305220F / RQ-4 UAV
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COST (\$ in Millions)	Prior Years ⁽⁺⁾	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	2,484.134	241.828	188.053	256.307	0.000	256.307	321.807	260.038	300.498	235.024	598.457	4,886.146
675145: RQ-4 Block 30	29.932	206.436	135.557	126.737	0.000	126.737	45.430	26.982	27.799	25.574	0.000	624.447
675146: RQ-4 Block 40	156.455	12.637	4.944	0.089	0.000	0.089	0.138	0.146	0.138	0.145	0.000	174.692
675147: RQ-4 Grnd Segment/ Comm System	53.915	0.000	31.460	0.175	0.000	0.175	0.000	0.000	0.000	0.000	0.000	85.550
675148: Common-Airborne Sense and Avoid (C-ABSAA)	0.000	11.829	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	11.829
675149: RQ-4 Capability Enhancements	0.000	0.000	0.000	121.838	0.000	121.838	264.338	221.011	260.449	196.975	598.457	1,663.068
67RTIP: MP-RTIP	212.455	10.926	16.092	7.468	0.000	7.468	11.901	11.899	12.112	12.330	0.000	295.183

Program MDAP/MAIS Code: 252
Project MDAP/MAIS Code(s): 293

⁽⁺⁾ The sum of all Prior Years is \$2031.377 million less than the represented total due to several projects ending

Note

This program, BA 07 PE 0305220F, project 675149, RQ-4 Capability Enhancements, is a new start.
 This program, BA 07 PE 0305220F, project 675149, Ground Segment Modernization Program (GSMP), is a new start.
 This program, BA 07 PE 0305220F, project 675149, Capability Enhancements Government Test and Non-Prime Support, is a new start.

In FY 2017 and beyond, Program 0305220F, RQ-4, Project 675145, RQ-4 Block 30, Project 675146, RQ-4 Block 40, and Project 675147, RQ-4 Ground Segment/Comm System, modernization efforts were transferred to Program 0305220F, RQ-4, Project 675149, RQ-4 Capability Enhancements in order to allow greater visibility into Global Hawk modernization efforts.

A. Mission Description and Budget Item Justification

This program element funds five (5) related Air Force projects sharing the RQ-4 platform in common: the RQ-4 Block 30, the RQ-4 Block 40, the RQ-4 Ground Segment/Communication System, RQ-4 Capability Enhancements, and Multi-Platform Radar Technology Insertion Program (MP-RTIP) in FY17 and forward.

Global Hawk:

The RQ-4 Remotely Piloted Aircraft (RPA) provides a high altitude, deep look, long-endurance Intelligence, Surveillance, and Reconnaissance (ISR) capability that complements space and other airborne collectors during peacetime, crisis, and war-fighting scenarios. This funding supports the development of RQ-4 aircraft,

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0305220F / RQ-4 UAV	
<p>payloads, ground and support segments. The Block 20/30/40 RQ-4B RPA is the successor to the Block 10 RQ-4A, and is designed to employ 3,000 pounds of payload and enable Multi-Intelligence (multi-INT) collecting.</p> <p>Block 30 (Project 675145) employs upgraded Synthetic Aperture Radar (SAR) and Electro-Optical/Infrared (EO/IR) sensors known as the Enhanced Integrated Sensor Suite (EISS), the Airborne Signals Intelligence Payload (ASIP) sensor, and is being upgraded with a modular ISR payload adapter to accommodate Next Gen Sensors. Activities include mission planning development and testing, Mode 5 Automatic Dependent Surveillance-Broadcast (ADS-B), enhanced weather capability development and testing, ice protection system development and testing, airspace and interoperability and communication enhancements and updates, airframe upgrades, sensor upgrades and integration of alternate sensors, risk reduction and integration, periodic Operation Flight Program updates and releases, and resolution of issues with Diminishing Manufacturing Sources (DMS). This will include systems engineering/program management, configuration and data management, test and evaluation, management services, Deficiency Report/Materiel Improvement Project (DR/MIP) Investigations, studies and analysis and fielding support for Projects 675146 (Block 40), 675147 (Ground Segment/Comm System), and 675149 (Capability Enhancements).</p> <p>The Block 40 (Project 675146) employs the MP-RTIP (Project 67RTIP) radar sensor. In FY15 and beyond, this includes the Block 40 costs for the development of enhanced weather capability development and testing, additional sensor modes, mission planning development and testing, airspace integration activities including Mode 5 Automatic Dependent Surveillance-Broadcast (ADS-B), airspace and interoperability and communication enhancements and updates, airframe and sensor enhancements to the Block 40 fleet. Activities also include studies and analysis, providing support to future system enhancements, communication and interoperability enhancements, periodic Operational Flight Program updates and releases, current and future program planning, and project execution.</p> <p>The Ground Segment/Communication System (Project 675147) includes the Ground Segment Modernization Program (GSMP), Communication System Modernization Program (CSMP), and the Next Generation Communication System. The ground segment currently includes the Mission Control Element (MCE), the Launch and Recovery Element (LRE), and the networking resources required to simultaneously disseminate intelligence while remaining compliant with Department of Defense (DoD) cybersecurity network requirements to operate on the Global Information Grid. As a result of the reinstatement of the Block 30s in the FY15 PB, the requirement for ground stations operations significantly increased which increased the need for efforts to address DMS issues. The GSMP supports a 20 year operational lifecycle, and comprises an approach that enhances capability and combines the functionality of legacy MCEs and LREs into a single building-based configuration. It will also enhance interoperability data dissemination and provide a robust training capability. The CSMP will provide enhancements across the RQ-4 communication network.</p> <p>RQ-4 Capability Enhancements (Project 675149) begins in FY17 and is intended to provide greater visibility into Global Hawk modernizations by consolidating the majority of the efforts from Project 675145 (Block 30), Project 675146 (Block 40), and Project 675147 (Ground Segment/Comm System) consistent with the approved acquisition strategy. Activities include airspace and interoperability and communication enhancements and updates, airframe upgrades, sensor upgrades and integration of alternate sensors, risk reduction and integration, ice protection system development and testing, program protection projects, cybersecurity, government furnished equipment repair, legacy data items (technical data packages), resolution of issues with DMS, periodic Operation Flight Program updates and releases, and additional sensor modes. This will include systems engineering/program management, configuration and data management, test and evaluation, management services, DR/MIP Investigations, studies and analysis and fielding support for Projects 675145 (Block 30), 675146 (Block 40), and 675147 (Ground Segment/Comm System). Activities also include the GSMP, CSMP and the Next Generation Communication System. The RQ-4 program will maintain and upgrade interoperability for Blocks 20/30/40 with system of systems partners and continue to incorporate applicable synergies with other platforms such as the U.S. Navy's Triton, other RPA weapon</p>		

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0305220F / RQ-4 UAV	
<p>systems, and Transport, Processing, Exploitation & Dissemination (T-PED) elements. The networking capability for intelligence dissemination is required to provide the data transport interface between the Weapons System, Operations Centers, and external Intelligence Community customers.</p> <p>When judged feasible and affordable, this program will participate in the development, testing, and implementation of international standards to enhance joint, allied, and coalition interoperability. Studies and activities may be initiated to further explore the utility of incorporating the emerging architectural standards such as the USAF Unmanned Aerial System (UAS) Command and Control Initiative (UCI) or the DoD's Unmanned Control Segment standards (UCS) and Open Mission Systems (OMS). GSMP and CSMP will incorporate UCI and UCS standards.</p> <p>Common-Airborne Sense and Avoid (C-ABSAA): In FY 2016, PE 0305220F, RQ-4, Project 675148, Common-Airborne Sense and Avoid (C-ABSAA), efforts transferred to PE 0305206F, Airborne Reconnaissance Systems, Project 675148 in order to provide greater visibility into this capability and prepares for expanded applications by making the capability program and platform agnostic.</p> <p>C-ABSAA is an analysis and developmental effort in the pre-Material Development Decision phase of the acquisition lifecycle which supports emerging warfighter requirements to fully integrate Group 4-5 RPA into the National Airspace System (NAS), international airspace, other nations' sovereign airspace, and operational combat airspace to conduct the entire range of military operations across all mission environments. C-ABSAA also supports the "Worldwide Operations" Key Performance Parameter (KPP) in larger RPA requirement documents, and Public Law 112-239 directing DoD collaboration with the Federal Aviation Administration (FAA) and the National Air and Space Administration (NASA) to safely integrate RPA in the NAS. Funding in this project supports the development of a Sense and Avoid (SAA) capability set for Group 4-5 RPA and covers analysis, research, and developmental activities as well as infrastructure and other government costs. Activities included support to the development of warfighter requirements and analysis of possible solution alternatives, the collaboration with the FAA, NASA, and the other Services to develop national policy and standards, and SAA related studies, analysis, modeling and simulation, program planning and project execution. RPA platform specific integration and testing is not included.</p> <p>MP-RTIP: The MP-RTIP sensor was designed as a family of modular, scalable sensors to provide next generation capabilities to support sustainable network centric operations with integrated Command and Control, Intelligence, Surveillance and Reconnaissance (C2ISR) capability. MP-RTIP provides the RQ-4 Block 40 aircraft with advanced Synthetic Aperture Radar (SAR) and Moving Target Indicator (MTI) sensor capabilities.</p> <p>This project (67RTIP) includes all MP-RTIP design, development, test, and integration efforts for the RQ-4 Block 40 platform. Integration activities include platform integration of the MP-RTIP sensor and sustainment logistics planning support. MP-RTIP studies and development insertion include the implementation of Maritime Modes (MM) and other radar modes, electronic protection, product improvements and other advanced capabilities.</p> <p>Activities also include studies and analysis supporting current and future program planning and future modes development based on user requirements.</p>		

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0305220F / RQ-4 UAV
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Per direction of USD(AT&L), the RQ-4 program was restructured from the original project 675144 (Baseline) into multiple projects: (1) Block 30, (2) Block 40, (3) GroundSegment/Communications System, and (4) C-ABSAA. Prior year funds in the amount of \$2031.377M were accounted for in project 675144.

The Cost to Complete and Total Cost for Major Defense Acquisition Program (MDAP) projects in this program element are documented in the R3. Total Cost on the R2 is not reflective of the total cost for MDAP projects since the R2 does not account for prior years funding for in project 675144.

The FY 2017 funding request was reduced by \$33.19 million to account for the availability of prior year execution balances.

This program is in Budget Activity 7, Operational System Development, because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	241.828	208.053	289.497	0.000	289.497
Current President's Budget	241.828	188.053	256.307	0.000	256.307
Total Adjustments	0.000	-20.000	-33.190	0.000	-33.190
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	-20.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	-33.190	0.000	-33.190

Change Summary Explanation

FY16 \$20.0M decrease: Delays in Global Hawk program

FY17 \$33.2M decrease: Reduction to account for the availability of prior year execution balances

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force										Date: February 2016		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0305220F / RQ-4 UAV				Project (Number/Name) 675145 / RQ-4 Block 30			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
675145: RQ-4 Block 30	29.932	206.436	135.557	126.737	0.000	126.737	45.430	26.982	27.799	25.574	0.000	624.447
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

The RQ-4 Block 40 Project was directed by an Acquisition Decision Memorandum (ADM) signed 14 Jun 2011 by USD (AT&L). At the time of the ADM signature, and subsequent designation of projects, budgets had already been finalized. Prior budgets for all projects are captured under the RQ-4 Baseline project, as its related Project (675144) was the core project for the RQ-4 program prior to the directed restructure.

In FY 2017 and beyond, Program 0305220F, RQ-4, Project 675145, Block 30, modernization efforts will be transferred to Program 0305220F, RQ-4, Project 675149, Capability Enhancements. The transfer of these efforts will allow greater visibility into Global Hawk upgrade efforts.

A. Mission Description and Budget Item Justification

The RQ-4 Remotely Piloted Aircraft (RPA) provides a high altitude, deep look, long-endurance Intelligence, Surveillance, and Reconnaissance (ISR) capability that complements space and other airborne collectors during peacetime, crisis, and war-fighting scenarios. RDT&E funding in this project supports design, development, integration, and testing of capabilities needed to meet validated requirements for Block 30 aircraft, including continuing aircraft system upgrade for Enhanced Integrated Sensor Suite (EISS) sensors, the Airborne Signals Intelligence Payload (ASIP), and alternate sensor payloads.

This funding also supports aircraft systems upgrades to include continuing aircraft operations surety, cybersecurity, information assurance, and mission critical repair of Government Furnished Equipment (GFE).

Activities include mission planning development and testing, completion of Synthetic Aperture Radar (SAR) - Complex Imagery (CI) development testing, enhanced weather capability development and testing, airspace and interoperability enhancements and updates, airframe and software upgrades and deficiency report resolution across RQ-4 fleet, periodic Operation Flight Program updates and releases, sensor interoperability and communication enhancements and alternate sensor upgrades, program protection projects, upgrades to ASIP Signals Intelligence (SIGINT) sensor, Identification Friend or Foe (IFF) Mode 5 Automatic Dependent Surveillance-Broadcast (ADS-B) development and testing, development and testing activities associated with enhancing sensor capability and sensor integration, development and testing of ice protection system, support of demonstration and technology insertion, and studies and analysis supporting future system enhancements.

The RQ-4 program will maintain and upgrade interoperability for Blocks 20/30/40 with system of systems partners and continue to incorporate applicable synergies with other platforms such as the U.S. Navy's Triton, other RPA weapon systems, and Processing, Exploitation & Dissemination (PED) elements. The networking capability for intelligence dissemination is required to provide the data transport interface between the Weapons System, Operations Centers, and external Intelligence Community customers.

This program will participate in the development, testing, and implementation of international standards to enhance joint, allied, and coalition interoperability. Likewise, studies and activities will be initiated to further explore the utility of incorporating the emerging architectural standards such as the USAF Unmanned Aerial System

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016		
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305220F / RQ-4 UAV	Project (Number/Name) 675145 / RQ-4 Block 30		
(UAS) Command and Control Initiative (UCI), the DoD's Unmanned Control Segment standards (UCS), or Open Mission Systems (OMS) as well as technology insertion activities in support of Better Buying Power (BBP).				
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2015	FY 2016	FY 2017
Title: RQ-4 Block 30 Development and Demonstration		140.322	69.709	93.378
Description: RQ-4 Development and Demonstration (includes enterprise management, test and evaluation, software integration, and fielding support for projects 675145, 675146 (Block 40), 675147 (Ground Segment/Comm System), and 675149 (Capability Enhancements) as well as periodic Operational Flight Program updates and releases, studies and analysis supporting future system enhancements)				
FY 2015 Accomplishments:				
<ul style="list-style-type: none"> - Continued enhancement of Enhanced Integrated Sensor Suite (EISS), including completion of Synthetic Aperture Radar (SAR)-Complex Imagery (CI) development - Continued development of Joint Mission Planning System (JMPS) mission planning integration - Began Enhanced Weather Capability effort, Identification Friend or Foe (IFF) Mode 5/Automatic Dependent Surveillance - Broadcast (ADS-B), and Airborne Signals Intelligence Payload (ASIP) enhancements - Submitted Sensor Study - Began engine ice protection trade study 				
FY 2016 Plans:				
<ul style="list-style-type: none"> - Begin development activities to support IFF and sensor interoperability communication enhancements - Continue development of system interoperability, IFF Mode 5/ADS-B, enhanced weather capability, JMPS mission planning, cybersecurity and information assurance and reliability & maintainability, and associated testing & evaluation 				
FY 2017 Plans:				
<ul style="list-style-type: none"> - Will continue upgrades to ASIP SIGINT and EISS sensors - Will continue airspace integration activities including IFF Mode 5/ADS-B, comm interoperability and upgrades, cybersecurity and information assurance and reliability & maintainability, and associated testing - Will initiate Operational Flight Program updates and releases - Begin development of ice protection system - Operational test and completion of enhanced weather capability and JMPS 				
Title: MS-177 Sensor Integration		42.000	40.400	4.000
Description: Integration of MS-177 multispectral sensor into Block 30				
FY 2015 Accomplishments:				

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305220F / RQ-4 UAV	Project (Number/Name) 675145 / RQ-4 Block 30

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
- Completed pre-contract activities for integration contract of MS-177 sensor			
FY 2016 Plans: - Contract award for MS-177 integration and development activities - Initiate sensor enhancement RDT&E of additional spectral band request for FOC capability			
FY 2017 Plans: - Will continue the development, integration, and testing of MS-177 on Block 30			
Title: Block 30 Government Test and Non-Prime Support	24.114	25.448	29.359
Description: Government test, non-prime technical support and Other Government Costs (OGC) -- Funding supports RQ-4 development testing at the 412 Test Wing at Edwards AFB, CA as well as for support from Air Force Operational Test and Evaluation Center (AFOTEC), Joint Interoperability Test Command (JITC), Distributed Common Ground System (DCGS), other interoperability partners and OGC.			
FY 2015 Accomplishments: - Continued government test - Continued non-prime engineering and technical support and Other Government Costs			
FY 2016 Plans: - Continue government test - Continue non-prime engineering and technical support and Other Government Costs			
FY 2017 Plans: - Will continue government test - Will continue non-prime engineering and technical support and Other Government Costs			
Accomplishments/Planned Programs Subtotals	206.436	135.557	126.737

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• APAF: BA04: Line Item # HAEUAV: RQ-4	54.475	29.900	12.966	0.000	12.966	0.000	0.000	0.000	0.000	0.000	3,810.159
• APAF: BA05: Line Item # HAWK00: RQ-4 Mods	21.354	50.022	32.045	0.000	32.045	55.305	81.078	40.029	155.662	642.863	1,481.419
• APAF: BA07: Line Item # RQ4DIS: RQ-4 Post Production Support	0.000	0.000	0.099	0.000	0.099	58.547	68.177	46.654	0.000	0.000	173.477

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305220F / RQ-4 UAV	Project (Number/Name) 675145 / RQ-4 Block 30

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

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u> <u>Base</u>	<u>FY 2017</u> <u>OCO</u>	<u>FY 2017</u> <u>Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
Remarks											

D. Acquisition Strategy

The RQ-4 program uses an evolutionary acquisition strategy to provide the warfighter with a near-term combat capability with increased time-phased capability improvements as technology and risk achieve satisfactory levels. Northrop Grumman Corporation is the prime contractor. A suite of contract vehicles is used for development efforts: primarily, Indefinite Delivery, Indefinite Quantity (IDIQ) contracts cover development, system upgrade, production, retrofit, fielding, and sustainment efforts through FY 2020. MS-177 Sensor Enhancement RDT&E is being contracted directly with the Original Equipment Manufacturer (OEM), UTAS.

The program successfully completed Milestone (MS) C in February 2015 and is transitioning core program activities to the Operations and Support phase of the Defense Acquisition System over the next several years. Future required capabilities beyond the core Acquisition Category (ACAT) IC RQ-4 program will be completed as separate ACAT II and ACAT III modification programs.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305220F / RQ-4 UAV	Project (Number/Name) 675145 / RQ-4 Block 30
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Global Hawk Engineering Manufacturing & Development	SS/ Various	Northrop Grumman Integrated Systems : San Diego, CA	28.982	138.902	Jul 2015	69.609	May 2016	93.378	Jul 2017	0.000		93.378	110.928	441.799	459.930
MS-177	SS/ Various	Northrop Grumman Integrated Systems : San Diego, CA	0.000	42.000	Nov 2015	40.400	Jul 2016	4.000	Nov 2016	0.000		4.000	0.000	86.400	86.400
Subtotal			28.982	180.902		110.009		97.378		0.000		97.378	110.928	528.199	546.330

Remarks
Target Value of the Global Hawk EMD, IDIQ, and EPIC Contracts are not segregated by Budget Project Number.

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Non Prime Technical Support	Various	Various : Dayton, OH	0.000	1.420	Jan 2015	0.100	Feb 2016	0.423	Jan 2016	0.000		0.423	0.396	2.339	-
Subtotal			0.000	1.420		0.100		0.423		0.000		0.423	0.396	2.339	-

Remarks
Target Value of the Global Hawk effort is not segregated by Budget Project Number.

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Flight Test & Evaluation	MIPR	412 TW : Edwards AFB, CA	0.950	16.522	Oct 2014	17.008	Oct 2015	23.604	Oct 2016	0.000		23.604	8.145	66.229	-
Subtotal			0.950	16.522		17.008		23.604		0.000		23.604	8.145	66.229	-

Remarks
Target Value of the Global Hawk effort is not segregated by Budget Project Number.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305220F / RQ-4 UAV	Project (Number/Name) 675145 / RQ-4 Block 30
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Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
PMA: A&AS	Various	Various : Dayton, OH	0.000	5.270	Nov 2014	5.064	Nov 2015	3.200	Nov 2015	0.000		3.200	5.090	18.624	-
PMA: Other Government Costs	Various	Various : Dayton, OH	0.000	2.322	Oct 2014	3.376	Oct 2015	2.132	Oct 2015	0.000		2.132	1.226	9.056	-
Subtotal			0.000	7.592		8.440		5.332		0.000		5.332	6.316	27.680	-

Remarks
Target Value of the Global Hawk Contracts is not segregated by Budget Project Number.

	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	29.932	206.436	135.557	126.737	0.000	126.737	125.785	624.447	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305220F / RQ-4 UAV	Project (Number/Name) 675145 / RQ-4 Block 30
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	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
SAR Complex Imagery Development																												
Enhanced Weather Capability Development																												
Mode 5/ADS-B Development																												
ASIP Inc 1 Development																												
Mission Planning Development																												
Sensor Enhancements & Upgrades (MS-177) Development																												
Operational Flight Program Updates & Releases																												
Test Support																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305220F / RQ-4 UAV	Project (Number/Name) 675145 / RQ-4 Block 30
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
SAR Complex Imagery Development	3	2015	2	2016
Enhanced Weather Capability Development	2	2015	1	2017
Mode 5/ADS-B Development	4	2015	4	2017
ASIP Inc 1 Development	4	2015	1	2017
Mission Planning Development	1	2015	3	2016
Sensor Enhancements & Upgrades (MS-177) Development	4	2015	4	2016
Operational Flight Program Updates & Releases	3	2017	4	2021
Test Support	1	2015	4	2017

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force										Date: February 2016		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0305220F / RQ-4 UAV				Project (Number/Name) 675146 / RQ-4 Block 40			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
675146: RQ-4 Block 40	156.455	12.637	4.944	0.089	0.000	0.089	0.138	0.146	0.138	0.145	0.000	174.692
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

The RQ-4 Block 40 Project was directed by an Acquisition Decision Memorandum (ADM) signed 14 Jun 2011 by USD (AT&L). At the time of the ADM signature, and subsequent designation of projects, budgets had already been finalized. Prior budgets for all projects are captured under the RQ-4 Baseline project, as its related Project (675144) was the core project for the RQ-4 program prior to the directed restructure.

In FY 2017 and beyond, Program 0305220F, RQ-4, Project 675146, Block 40, modernization efforts will be transferred to Program 0305220F, RQ-4, Project 675149, Capability Enhancements. The transfer of these efforts will allow greater visibility into Global Hawk modernization efforts.

A. Mission Description and Budget Item Justification

The RQ-4 Remotely Piloted Aircraft (RPA) provides a high altitude, deep look, long-endurance Intelligence, Surveillance, and Reconnaissance (ISR) capability that complements space and other airborne collectors during peacetime, crisis, and war-fighting scenarios.

RDT&E funding in this project supports design, development, integration, and testing of items needed to meet validated requirements for Block 40 aircraft, including further development, integration and test of the Multi-Platform Radar Technology Insertion Program (MP-RTIP) sensor capabilities. The Block 40 program provides critical Synthetic Aperture Radar (SAR) and Ground Moving Target Indicator (GMTI) data to the warfighter. This funding also supports continued aircraft/communications systems upgrade to include Identification Friend of Foe (IFF) Mode 5/ADS-B, program protection projects, mission planning upgrade development and testing, airspace and interoperability and communication enhancements and updates, enhanced weather capability, development and testing of ice protection system, additional radar modes, sensor enhancements, reliability and maintainability improvements, and support of demonstration and technology insertion. Funding continues RQ-4 unique development and integration of upgraded capabilities.

This program will participate in the development, testing, and implementation of international standards to enhance joint, allied, and coalition interoperability. Likewise, studies and activities will be initiated to further explore the utility of incorporating the emerging architectural standards such as the USAF Unmanned Aerial System (UAS) Command and Control Initiative (UCI), the DoD's Unmanned Control Segment standards (UCS), or Open Mission Systems (OMS) as well as technology insertion activities in support of Better Buying Power (BBP).

The RQ-4 program will maintain capability and interoperability for Block 40 including efforts with system of systems partners and continue to incorporate applicable synergies with other platforms, such as the U.S. Navy's Triton, other RPA weapon systems, and Processing, Exploitation & Dissemination (PED) elements.

Activities also include studies and analysis, support to future system enhancements, communication and interoperability enhancements, current and future program planning, and project execution.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305220F / RQ-4 UAV	Project (Number/Name) 675146 / RQ-4 Block 40

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
<p>Title: RQ-4 Block 40 Development and Demonstration</p> <p>Description: RQ-4 Block 40 Payload and Aircraft/Communications Development and Demonstration as well as periodic Operational Flight Program updates and releases</p> <p>FY 2015 Accomplishments:</p> <ul style="list-style-type: none"> - Continued RQ-4 unique development and integration of MP-RTIP upgraded capabilities - Continued Aircraft/ Communication systems modernization to include IFF Mode 5/ADS-B, mission planning upgrade, and program protection - Continued aircraft operations surety, cybersecurity and information assurance, and reliability & maintainability and associated testing & evaluation - Established and utilized second operational location <p>FY 2016 Plans:</p> <ul style="list-style-type: none"> - Conduct IOT&E - Begin development activities to support airspace integration activities including IFF Mode 5/ADS-B - Continue development of mission planning, sensor software, and integration of additional MP-RTIP radar modes - Continue enhancements to system interoperability, cybersecurity, comms, information assurance, and reliability & maintainability improvements and associated testing & evaluation. <p>FY 2017 Plans:</p> <ul style="list-style-type: none"> - Will initiate Operational Flight Program updates and releases 	12.637	4.944	0.089
Accomplishments/Planned Programs Subtotals	12.637	4.944	0.089

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• APAF: BA04: Line Item # HAEUAV: RQ-4	54.475	29.900	12.966	0.000	12.966	0.000	0.000	0.000	0.000	0.000	3,810.159
• APAF: BA05: Line Item # HAWK00: RQ-4 Mods	21.354	50.022	32.045	0.000	32.045	55.305	81.078	40.029	155.662	642.863	1,481.419
• APAF: BA07: Line Item # RQ4DIS: RQ-4 Post Production Support	0.000	0.000	0.099	0.000	0.099	58.547	68.177	46.654	0.000	0.000	173.477
• RDTE: BA07: PE 0305238F: NATO AGS	232.851	138.400	38.904	0.000	38.904	0.000	0.000	0.000	0.000	0.000	765.541

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305220F / RQ-4 UAV	Project (Number/Name) 675146 / RQ-4 Block 40
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u> <u>Base</u>	<u>FY 2017</u> <u>OCO</u>	<u>FY 2017</u> <u>Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
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Remarks

D. Acquisition Strategy

The RQ-4 program uses an evolutionary acquisition strategy to provide the warfighter with a near-term combat capability with increased time-phased capability improvements as technology and risk achieve satisfactory levels. Northrop Grumman Corporation is the prime contractor. A suite of contract vehicles is used for development efforts: a legacy EMD "C" contract is being phased out with the completion of current efforts; IDIQ contracts cover development, upgrade, production, retrofit, fielding, and sustainment efforts through FY 2020.

The program successfully completed Milestone (MS) C in February 2015 and is transitioning core program activities to the Operations and Support phase of the Defense Acquisition System over the next several years. Future required capabilities beyond the core Acquisition Category (ACAT) IC RQ-4 program will be completed as separate ACAT II and ACAT III modification programs.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305220F / RQ-4 UAV	Project (Number/Name) 675146 / RQ-4 Block 40
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Global Hawk Engineering Manufacturing & Development	SS/ Various	Northrop Grumman Integrated Systems : San Diego, CA	121.403	12.637	Nov 2014	4.944	Nov 2015	0.089	Nov 2015	0.000		0.089	0.567	139.640	139.640
Subtotal			121.403	12.637		4.944		0.089		0.000		0.089	0.567	139.640	139.640

Remarks
Target Value of the RQ-4 EMD, IDIQ, and EPIC contracts are not segregated by Budget Project Number.

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Non-Prime Technical Support	Various	Various : Dayton, OH	1.369	0.000		0.000		0.000		0.000		0.000	0.000	1.369	-
Subtotal			1.369	0.000		0.000		0.000		0.000		0.000	0.000	1.369	-

Remarks
Target Value of the RQ-4 contract is not segregated by Budget Project Number.

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Flight Test & Evaluation	MIPR	412 TW : Edwards AFB, CA	23.231	0.000		0.000		0.000		0.000		0.000	0.000	23.231	-
Subtotal			23.231	0.000		0.000		0.000		0.000		0.000	0.000	23.231	-

Remarks
Target Value of the RQ-4 effort is not segregated by Budget Project Number.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305220F / RQ-4 UAV	Project (Number/Name) 675146 / RQ-4 Block 40
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Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
PMA: A&AS	Various	Various : Dayton, OH	7.040	0.000		0.000		0.000		0.000		0.000	0.000	7.040	-
PMA: Other Gov't Cost	Various	Various : Dayton, OH	3.412	0.000		0.000		0.000		0.000		0.000	0.000	3.412	-
Subtotal			10.452	0.000		0.000		0.000		0.000		0.000	0.000	10.452	-

Remarks
Target Value of the RQ-4 contracts is not segregated by Budget Project Number.

	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	156.455	12.637	4.944	0.089	0.000	0.089	0.567	174.692	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305220F / RQ-4 UAV	Project (Number/Name) 675146 / RQ-4 Block 40
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	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Block 40 IOT&E																												
Block 40 IOC June 2016																												
Block 40 FOC June 2017																												
RTIP Enhancements Development																												
Enhanced Weather Capability Development																												
Mode 5/ADS-B Development																												
Mission Planning Development																												
Sensor Integration/Modes Development																												
Operational Flight Program Updates and Releases																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305220F / RQ-4 UAV	Project (Number/Name) 675146 / RQ-4 Block 40
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Block 40 IOT&E	4	2015	2	2016
Block 40 IOC June 2016	3	2016	3	2016
Block 40 FOC June 2017	3	2017	3	2017
RTIP Enhancements Development	1	2015	4	2016
Enhanced Weather Capability Development	2	2015	1	2017
Mode 5/ADS-B Development	4	2015	4	2017
Mission Planning Development	1	2015	3	2016
Sensor Integration/Modes Development	1	2017	4	2017
Operational Flight Program Updates and Releases	1	2017	4	2021

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force										Date: February 2016		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0305220F / RQ-4 UAV					Project (Number/Name) 675147 / RQ-4 Grnd Segment/Comm System		
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
675147: RQ-4 Grnd Segment/Comm System	53.915	0.000	31.460	0.175	0.000	0.175	0.000	0.000	0.000	0.000	0.000	85.550
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

Note

The RQ-4 Ground Segment/Communications System Sub-Program was directed by an Acquisition Decision Memorandum (ADM) signed 14 Jun 2011 by USD (AT&L). At the time of the ADM signature, and subsequent designation of sub-program projects, budgets had already been finalized. The budgets for all projects are captured under the RQ-4 baseline project, as its related Project (675144) was the core project for the RQ-4 program prior to the directed restructure.

In FY 2017 and beyond, Program 0305220F, RQ-4, Project 675147, Ground Segment/Comm System, modernization efforts will transfer to Program 0305220F, RQ-4, Project 675149, Capability Enhancements. The transfer of these efforts will allow greater visibility into Global Hawk modernization efforts.

A. Mission Description and Budget Item Justification

The RQ-4 Remotely Piloted Aircraft (RPA) provides a high altitude, deep look, long-endurance intelligence, surveillance, and reconnaissance (ISR) capability that complements space and other airborne collectors during peacetime, crisis, and war-fighting scenarios.

RDT&E funding in this project supports design, development, integration and testing of the weapon system's ground elements and communications capabilities to enhance functionality and maintain interoperability, as well as support for demonstration and technology insertion. The ground segment currently includes the Mission Control Elements (MCE), the Launch and Recovery Elements (LRE), and the networking resources required to simultaneously disseminate intelligence information while remaining compliant with DoD cybersecurity network requirements to operate on the Global Information Grid.

The RDT&E funding in this project also supports the Ground Segment Modernization Program (GSMP) and Communication System Modernization Program (CSMP) efforts, as well as next generation communications capabilities. GSMP resolves fleet grounding Diminishing Manufacturing Sources (DMS) and obsolescence issues associated with ground segment equipment and provides critical warfighter capabilities such as building-based multi-aircraft control. It will also enhance interoperability data dissemination as well as provide training capability. CSMP resolves critical DMS and obsolescence issues in the RQ-4 communication infrastructure and provides enhancements across the RQ-4 communication network. Both GSMP and CSMP will employ the USAF Unmanned Aerial System (UAS) Command and Control Initiative (UCI), the DoD's Unmanned Control Segment standards (UCS), and Open Mission Systems (OMS) using a service-oriented, open architecture approach. Prior to GSMP/CSMP fielding, funding from this project supports modifications to the legacy system to support operations.

This program will participate in the development, testing, and implementation of international standards to enhance joint, allied, and coalition interoperability. Likewise, studies and activities will be initiated to explore the utility of next-generation communications technologies, as well as emerging architectural standards such as UCI and UCS as well as technology insertion activities in support of Better Buying Power (BBP).

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016		
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305220F / RQ-4 UAV	Project (Number/Name) 675147 / RQ-4 Grnd Segment/Comm System		
The RQ-4 program will maintain and upgrade interoperability for Blocks 20/30/40 with system of systems partners and continue to incorporate applicable synergies with other platforms such as the U.S. Navy's Triton, other RPA weapon systems, and Processing, Exploitation & Dissemination (PED) elements. The networking capability for intelligence dissemination is required to provide the data transport interface between the Weapons System, Operations Centers, and external Intelligence Community customers.				
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2015	FY 2016	FY 2017
Title: RQ-4 Ground Segment / Communications System- Critical Obsolescence Issues & Modernization		0.000	2.373	0.175
Description: RQ-4 Ground Segment/ Communications System Development				
FY 2015 Accomplishments:				
<ul style="list-style-type: none"> - With prior year funding: - Continued to resolved critical DMS and obsolescence issues with ground and comms segment equipment and software - Maintained and upgraded interoperability and cybersecurity with system of systems partners - Explored and incorporated applicable synergies with other platforms, such as the U.S. Navy's Triton, other RPA weapon systems, and Processing, Exploitation & Dissemination (PED) elements - Incorporated Air Vehicle (AV) modifications/upgrades into the ground segment architecture 				
FY 2016 Plans:				
<ul style="list-style-type: none"> - Continue to resolve critical DMS and obsolescence issues with ground and comms segment equipment and software - Begin interoperability upgrades and cybersecurity with system of systems partners - Incorporate applicable synergies with other platforms, such as the U.S. Navy's Triton, other RPA weapon systems, and Processing, Exploitation & Dissemination (PED) elements - Incorporate Air Vehicle (AV) modifications/upgrades into the ground segment architecture 				
FY 2017 Plans:				
<ul style="list-style-type: none"> - Will continue to resolve critical DMS and obsolescence issues with ground and comms segment equipment and software - Will maintain and upgrade interoperability and cybersecurity with system of systems partners - Will continue to incorporate applicable synergies with other platforms, such as the U.S. Navy's Triton, other RPA weapon systems, and Processing, Exploitation & Dissemination (PED) elements - Will continue Air Vehicle (AV) modifications/upgrades into the ground segment architecture 				
Title: Ground Segment Modernization Program (GSMP)		0.000	28.412	0.000
Description: GSMP resolves fleet grounding DMS and obsolescence issues associated with ground segment equipment and provides critical warfighter capabilities such as building-based multi-aircraft control. It will also enhance interoperability data dissemination as well as provide training capability.				
FY 2015 Accomplishments:				

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305220F / RQ-4 UAV	Project (Number/Name) 675147 / RQ-4 Grnd Segment/Comm System

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
- N/A			
FY 2016 Plans: - Complete Acquisition Strategy Panel (ASP) and award development contract - Design and develop GSMP, leveraging earlier efforts which developed a modern aircraft command and control capability and an open-system architecture			
FY 2017 Plans: - N/A, effort is funded in Project 675149, RQ-4 Capability Enhancements			
Title: Government Test and Non-Prime support Description: Government test, non-prime technical support and Other Government Costs (OGC) -- The majority of this funding supports Global Hawk development testing at the 412 Test Wing at Edwards AFB, CA and also includes funding for support from Air Force Operational Test and Evaluation Center (AFOTEC), Joint Interoperability Test Command (JITC), Distributed Common Ground System (DCGS), other interoperability and cybersecurity partners and OGC.	0.000	0.675	0.000
FY 2015 Accomplishments: N/A			
FY 2016 Plans: - Continue government test and non-prime engineering and technical support and Other Government Costs for Ground Segment / Comm systems			
FY 2017 Plans: N/A, effort is funded in Project 675145, RQ-4 Block 30			
Accomplishments/Planned Programs Subtotals	0.000	31.460	0.175

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• APAF: BA04: Line Item # HAEUAV: RQ-4	54.475	29.900	12.966	0.000	12.966	0.000	0.000	0.000	0.000	0.000	3,810.159
• APAF: BA05: Line Item # HAWK00: RQ-4 Mods	21.354	50.022	32.045	0.000	32.045	55.305	81.078	40.029	155.662	642.863	1,481.419
• APAF: BA07: Line Item # RQ4DIS: RQ-4 Post Production Support	0.000	0.000	0.099	0.000	0.099	58.547	68.177	46.654	0.000	0.000	173.477

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305220F / RQ-4 UAV	Project (Number/Name) 675147 / RQ-4 Grnd Segment/Comm System

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

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u> <u>Base</u>	<u>FY 2017</u> <u>OCO</u>	<u>FY 2017</u> <u>Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
Remarks											

D. Acquisition Strategy

The RQ-4 program uses an evolutionary acquisition strategy to provide the warfighter with a near-term combat capability with increased time-phased capability improvements as technology and risk achieve satisfactory levels. Northrop Grumman Corporation is the prime contractor. A suite of contract vehicles is used for development efforts: a legacy EMD "C" contract is being phased out with the completion of current efforts; and IDIQ contracts cover development, upgrade, production, retrofit, fielding, and sustainment efforts through FY 2020.

The program successfully completed Milestone (MS) C in February 2015 and is transitioning core program activities to the Operations and Support phase of the Defense Acquisition System over the next several years. Future required capabilities beyond the core Acquisition Category IC (ACAT) RQ-4 program are planned to be added over time as separate ACAT II and ACAT III modification programs.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force											Date: February 2016				
Appropriation/Budget Activity 3600 / 7				R-1 Program Element (Number/Name) PE 0305220F / RQ-4 UAV				Project (Number/Name) 675147 / RQ-4 Grnd Segment/Comm System							

Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Global Hawk Engineering, Manufacturing & Development/IDIQ Ground Segment and Communication Systems	SS/CPIF	Northrop Grumman Integrated Systems : San Diego, CA	48.076	0.000		2.373	Nov 2015	0.000		0.000		0.000	0.000	50.449	50.449
Ground Segment Moderization Program (GSMP)	SS/CPIF	Northrop Grumman Integrated Sytems : San Diego, CA	0.000	0.000		28.412	Mar 2016	0.175	Apr 2017	0.000		0.175	0.000	28.587	28.587
Subtotal			48.076	0.000		30.785		0.175		0.000		0.175	0.000	79.036	79.036

Remarks
 Target Value of the RQ-4 EMD, IDIQ, and EPIC Contracts is not segregated by Budget Project Number. FY16 and beyond budget necessary for RQ-4 fleet support with Northrop Grumman is contained in Budget Project Number 675145, RQ-4 Block 30, Budget Project Number 675146, RQ-4 Block 40, and Budget Project Number 675149, RQ-4 Capability Enhancements.

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Non-Prime Technical Support	Various	Various : Dayton, OH	2.738	0.000		0.675	Dec 2015	0.000		0.000		0.000	0.000	3.413	-
Subtotal			2.738	0.000		0.675		0.000		0.000		0.000	0.000	3.413	-

Remarks
 Target Value of the RQ-4 Non-Prime Technical Support is not segregated by Budget Project Number.

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Flight Test & Evaluation	MIPR	412 TW : Edwards AFB, CA	2.500	0.000		0.000		0.000		0.000		0.000	0.000	2.500	-
Subtotal			2.500	0.000		0.000		0.000		0.000		0.000	0.000	2.500	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force											Date: February 2016				
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0305220F / RQ-4 UAV					Project (Number/Name) 675147 / RQ-4 Grnd Segment/Comm System				

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			

Remarks
Target Value of the RQ-4 effort is not segregated by Budget Project Number.

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
PMA: A&AS	Various	Various : Dayton, OH	0.401	0.000		0.000		0.000		0.000		0.000	0.000	0.401	-
PMA: Other Gov't Cost	Various	Various : Dayton, OH	0.200	0.000		0.000		0.000		0.000		0.000	0.000	0.200	-
Subtotal			0.601	0.000		0.000		0.000		0.000		0.000	0.000	0.601	-

Remarks
Target Value of the RQ-4 contracts is not segregated by Budget Project Number. FY16 and beyond budget necessary for RQ-4 fleet management services support and other government cost is contained in Budget Project Number 675145, RQ-4 Block 30, Budget Project 675146, RQ-4 Block 40, and Budget Project Number 675149, RQ-4 Capability Enhancements.

	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	53.915	0.000	31.460	0.175	0.000	0.175	0.000	85.550	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305220F / RQ-4 UAV	Project (Number/Name) 675147 / RQ-4 Grnd Segment/Comm System

	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Ground Segment Maintenance/Upgrades Development																												
Ground Segment Modernization Program (GSMP) Development																												
Comm Systems Maintenance/Upgrades Development																												
Communication Interoperability/Enhancements Development																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305220F / RQ-4 UAV	Project (Number/Name) 675147 / RQ-4 Grnd Segment/Comm System

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Ground Segment Maintenance/Upgrades Development	1	2015	1	2017
Ground Segment Modernization Program (GSMP) Development	1	2016	1	2017
Comm Systems Maintenance/Upgrades Development	1	2016	1	2017
Communication Interoperability/Enhancements Development	1	2017	1	2017

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force										Date: February 2016		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0305220F / RQ-4 UAV				Project (Number/Name) 675148 / Common-Airborne Sense and Avoid (C-ABSAA)			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
675148: <i>Common-Airborne Sense and Avoid (C-ABSAA)</i>	0.000	11.829	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	11.829
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Common-Airborne Sense and Avoid (C-ABSAA) is an analysis and developmental effort in the pre-Material Development Decision phase of the acquisition lifecycle which supports emerging warfighter requirements to fully integrate Group 4-5 RPA into the National Airspace System (NAS), international airspace, other nations' sovereign airspace, and operational combat airspace to conduct the entire range of military operations across all mission environments. C-ABSAA also supports the "Worldwide Operations" Key Performance Parameter (KPP) in larger Remotely Piloted Aircraft (RPA) requirement documents, and Public Law 112-239 directing DoD collaboration with the Federal Aviation Administration (FAA) and the National Air and Space Administration (NASA) to safely integrate RPA in the NAS. Funding in this project supports the development of a Sense and Avoid (SAA) capability set for Group 4-5 RPA and covers analysis, research, and developmental activities as well as infrastructure and other government costs. Ongoing activities include support to the development of warfighter requirements and analysis of possible solution alternatives, the collaboration with the FAA, NASA, and the other Services to develop national policy and standards, and SAA related studies, analysis, modeling and simulation, program planning and project execution. RPA platform specific integration and testing is not included.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2015	FY 2016	FY 2017
Title: SAA-Related Requirements Development and Analysis, National Policy Standards Development, and Technology Development and Demonstration	11.829	0.000	0.000
Description: Support development and analysis of warfighter requirements and analysis of possible solution alternatives. Develop Sense and Avoid (SAA) technology and capabilities for Group 4-5 RPA. Collaborate with the FAA, NASA, and the other Services to develop national policy and standards. Conduct SAA related studies, analysis, modeling and simulation, demonstrations, program planning and project execution.			
FY 2015 Accomplishments: Supported Air Combat Command with Initial Capabilities Document development and approval, and conducted Developmental Planning/Pre-Analysis of Alternatives activity. Continued to collaborate with FAA, NASA, and the other Services on national policy and standards, and built and exercised modeling and simulation capabilities to support requirements, policy/standards, and technology development. Continued SAA science and technology research and development with the AFRL.			
FY 2016 Plans: In FY 2016, PE 0305220F, RQ-4, Project 675148, C-ABSAA, will transfer to PE 0305206F, Airborne Reconnaissance Systems, Project 675148, C-ABSAA.			
FY 2017 Plans:			

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305220F / RQ-4 UAV	Project (Number/Name) 675148 / <i>Common-Airborne Sense and Avoid (C-ABSAA)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
In FY 2017, efforts will transfer from PE 0305206F, Airborne Reconnaissance Systems, Project 675148, C-ABSAA, to PE 0604257F, Advanced Technology and Sensors, Project 645148, C-ABSAA.			
Accomplishments/Planned Programs Subtotals	11.829	0.000	0.000

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

N/A

Remarks

D. Acquisition Strategy

C-ABSAA will integrate Better Buying Power 3.0 initiatives throughout its acquisition lifecycle and rely upon acquisition of government data rights to maximize contractor competition from Technology Development through Production. The program uses an incremental acquisition strategy to provide the warfighter with SAA capability for Group 4-5 RPA with increased, time-phased capability improvements as technology and risks achieve satisfactory levels. Group 4-5 RPA platforms will be expected to integrate the C-ABSAA provided capability into their unique systems via retrofit or in production.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305220F / RQ-4 UAV	Project (Number/Name) 675148 / Common-Airborne Sense and Avoid (C-ABSAA)
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
C-ABSAA Technology Development	C/Various	Various : Various	0.000	11.088	Oct 2014	0.000		0.000		0.000		0.000	0.000	11.088	TBD
Subtotal			0.000	11.088		0.000		0.000		0.000		0.000	0.000	11.088	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Management Administration (PMA)	Various	Various : Dayton, OH	0.000	0.741	Oct 2014	0.000		0.000		0.000		0.000	0.000	0.741	TBD
Subtotal			0.000	0.741		0.000		0.000		0.000		0.000	0.000	0.741	-

Remarks
The Target supports multiple technology development contracts.

	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals		0.000	11.829	0.000	0.000	0.000	0.000	11.829	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force							Date: February 2016		
Appropriation/Budget Activity 3600 / 7			R-1 Program Element (Number/Name) PE 0305220F / RQ-4 UAV			Project (Number/Name) 675148 / Common-Airborne Sense and Avoid (C-ABSAA)			
	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract

Remarks
 In FY 2016, PE 0305220F, RQ-4, Project 675148, Common-Airborne Sense & Avoid (C-ABSAA), transferred to PE 0305206F, Airborne Reconnaissance Systems, Project 675148, Common-Airborne Sense and Avoid (C-ABSAA). This transfer will provide greater visibility into this capability and prepares for expanded applications by making the capability program platform agnostic.

The Target Value supports multiple technology development contracts.

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305220F / RQ-4 UAV	Project (Number/Name) 675148 / Common-Airborne Sense and Avoid (C-ABSAA)

	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

Initial Capabilities Document (ICD)	[REDACTED]																											
Decvelopment Planning/Pre-Analysis of Alternatives	[REDACTED]																											

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305220F / RQ-4 UAV	Project (Number/Name) 675148 / <i>Common-Airborne Sense and Avoid (C-ABSAA)</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Initial Capabilities Document (ICD)	1	2015	3	2015
Decvelopment Planning/Pre-Analysis of Alternatives	3	2015	1	2016

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305220F / RQ-4 UAV	Project (Number/Name) 675149 / RQ-4 Capability Enhancements
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
675149: RQ-4 Capability Enhancements	0.000	0.000	0.000	121.838	0.000	121.838	264.338	221.011	260.449	196.975	598.457	1,663.068
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Project MDAP/MAIS Code: 293

Note
 This program, BA 07 PE 0305220F, project 675149, RQ-4 Capability Enhancements, is a new start.
 This program, BA 07 PE 0305220F, project 675149, Ground Segment Modernization Program (GSMP), is a new start.
 This program, BA 07 PE 0305220F, project 675149, Capability Enhancements Government Test and Non-Prime Support, is a new start.

In FY 2017 and beyond, Program 0305220F, RQ-4, Project 675145, Block 30, Project 675146, RQ-4 Block 40, and Project 675147, Ground Segment/Comm System, modernization efforts were transferred to Program 0305220F, RQ-4, Project 675149, Capability Enhancements. The transfer of these efforts will allow greater visibility into Global Hawk modernization efforts.

A. Mission Description and Budget Item Justification

The RQ-4 Remotely Piloted Aircraft (RPA) provides a high altitude, deep look, long-endurance Intelligence, Surveillance, and Reconnaissance (ISR) capability that complements space and other airborne collectors during peacetime, crisis, and war-fighting scenarios. RDT&E funding in this project supports design, development, integration, and testing of capabilities needed to meet validated requirements for RQ-4 aircraft, including continuing aircraft system upgrade for current and alternate sensor payloads.

This funding supports aircraft systems upgrade to include continuing aircraft operations surety, cybersecurity, information assurance, and mission critical repair of Government Furnished Equipment (GFE).

Activities include airspace and interoperability and communication enhancements and updates, periodic Operational Flight Program updates and releases, airframe and software upgrades, deficiency report resolution across RQ-4 fleet, sensor enhancements and alternate sensor upgrades, enhanced comms capabilities, program protection projects, support for demonstration and technology insertion, development and testing of ice protection system, program protection projects, and studies and analysis supporting future system enhancements. Additionally, this project supports design, development, integration, and testing of items needed to meet validated requirements for Block 40 aircraft, including further development, integration and test of the Multi-Platform Radar Technology Insertion Program (MP-RTIP) sensor capabilities, continued aircraft/communications systems upgrade, additional radar maritime modes, reliability and maintainability improvements, Ground Segment Modernization Program (GSMP) and Communication System Modernization Program (CSMP) efforts, as well as next generation communications capabilities. GSMP resolves fleet grounding Diminishing Manufacturing Sources (DMS) and obsolescence issues associated with ground segment equipment and provides critical warfighter capabilities such as building-based multi-aircraft control. It will also enhance interoperability data dissemination as well as provide training capability. CSMP resolves critical DMS and obsolescence issues in the RQ-4 communication infrastructure and provides enhancements across the RQ-4 communication network.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305220F / RQ-4 UAV	Project (Number/Name) 675149 / RQ-4 Capability Enhancements
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RDT&E funding in this project also supports design, development, integration and testing of the weapon system's legacy ground elements and communications capabilities to enhance functionality and maintain interoperability prior to GSMP/CSMP fielding. The ground segment currently includes the Mission Control Elements (MCE), the Launch and Recovery Elements (LRE), and the networking resources required to simultaneously disseminate intelligence information while remaining compliant with DoD cybersecurity network requirements to operate on the Global Information Grid.

The RQ-4 program will maintain and upgrade interoperability for Blocks 20/30/40 with system of systems partners and continue to incorporate applicable synergies with other platforms such as the U.S. Navy's Triton, other RPA weapon systems, and Processing, Exploitation & Dissemination (PED) elements. The networking capability for intelligence dissemination is required to provide the data transport interface between the Weapons System, Operations Centers, and external Intelligence Community customers.

This program will participate in the development, testing, and implementation of international standards to enhance joint, allied, and coalition interoperability. Likewise, studies and activities will be initiated to further explore the utility of incorporating the emerging architectural standards such as the USAF Unmanned Aerial System (UAS) Command and Control Initiative (UCI), the DoD's Unmanned Control Segment standards (UCS), or Open Mission Systems (OMS) as well as technology insertion activities in support of Better Buying Power (BBP).

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2015	FY 2016	FY 2017
<p>Title: RQ-4 Capability Enhancements</p> <p>Description: RQ-4 Development and Demonstration (includes enterprise management, test and evaluation, software integration, and fielding support for projects 675145 (Block30), 675146 (Block 40) and 675147 (Ground Segment/Comm System) as well as program protection projects, periodic Operational Flight Program updates and releases, studies and analysis supporting future system enhancements)</p> <p>FY 2015 Accomplishments: N/A</p> <p>FY 2016 Plans: N/A</p> <p>FY 2017 Plans:</p> <ul style="list-style-type: none"> - Support required sensor upgrades and current and alternate sensor enhancements and upgrades - Conduct airspace integration activities, integration of advanced sensors, utilization of additional radar modes, and comms system enhancements - Conduct development of ice protection system, continued system interoperability and upgrades, cybersecurity and information assurance and reliability & maintainability, and associated testing - Initiate Operational Flight Program updates and releases - Conduct pre-contract activities supporting the Communication System Modernization Program (CSMP) 	0.000	0.000	61.011
<p>Title: Ground Segment Modernization Program (GSMP)</p>	0.000	0.000	57.197

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305220F / RQ-4 UAV	Project (Number/Name) 675149 / RQ-4 Capability Enhancements

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
<p>Description: GSMP resolves fleet grounding DMS and obsolescence issues associated with ground segment equipment and provides critical warfighter capabilities such as building-based multi-aircraft control. It will also enhance interoperability data dissemination as well as provide training capability.</p> <p>FY 2015 Accomplishments: N/A</p> <p>FY 2016 Plans: N/A</p> <p>FY 2017 Plans: - Conduct development and system level testing of the GSMP</p>			
<p>Title: Capability Enhancements Government Test and Non-Prime Support</p> <p>Description: Government test, non-prime technical support and Other Government Costs (OGC) -- The majority of this funding supports RQ-4 development testing at the 412 Test Wing at Edwards AFB, CA and also includes funding for support from Air Force Operational Test and Evaluation Center (AFOTEC), Joint Interoperability Test Command (JITC), Distributed Common Ground System (DCGS), other interoperability partners and OGC.</p> <p>FY 2015 Accomplishments: N/A</p> <p>FY 2016 Plans: N/A</p> <p>FY 2017 Plans: - Will continue government test and non-prime engineering and technical support and Other Government Costs</p>	0.000	0.000	3.630
Accomplishments/Planned Programs Subtotals	0.000	0.000	121.838

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• APAF: BA04: Line Item # HAEUAV: RQ-4	54.475	29.900	12.966	0.000	12.966	0.000	0.000	0.000	0.000	0.000	3,810.159
• APAF: BA05: Line Item # HAWK00: RQ-4 Mods	21.354	50.022	32.045	0.000	32.045	55.305	81.078	40.029	155.662	642.863	1,481.419

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305220F / RQ-4 UAV	Project (Number/Name) 675149 / RQ-4 Capability Enhancements
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u> <u>Base</u>	<u>FY 2017</u> <u>OCO</u>	<u>FY 2017</u> <u>Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• APAF: BA07: Line Item # RQ4DIS: <i>RQ-4 Post Production Support</i>	0.000	0.000	0.099	0.000	0.099	58.547	68.177	46.654	0.000	0.000	173.477

Remarks

D. Acquisition Strategy

The RQ-4 program uses an evolutionary acquisition strategy to provide the warfighter with a near-term combat capability with increased time-phased capability improvements as technology and risk achieve satisfactory levels. Northrop Grumman Corporation is the prime contractor. A suite of contract vehicles is used for development efforts: primarily, IDIQ contracts cover development, upgrade, production, retrofit, fielding, and sustainment efforts through FY 2020.

The program successfully completed Milestone (MS) C in February 2015 and is transitioning core program activities to the Operations and Support phase of the Defense Acquisition System over the next several years. Future required capabilities beyond the core Acquisition Category (ACAT) IC RQ-4 program will be completed as separate ACAT II and ACAT III modification programs.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305220F / RQ-4 UAV	Project (Number/Name) 675149 / RQ-4 Capability Enhancements
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Global Hawk Engineering Manufacturing & Development/Capability Enhancements	SS/ Various	Northrop Grumman Integrated Systems : San Diego, CA	0.000	0.000		0.000		61.011	Jul 2017	0.000		61.011	1,201.231	1,262.242	1,262.242
Ground Segment Modernization Program (GSMP)	SS/CPIF	Northrop Grumman Integrated Systems : San Diego, CA	0.000	0.000		0.000		57.197	Apr 2017	0.000		57.197	104.610	161.807	161.807
Subtotal			0.000	0.000		0.000		118.208		0.000		118.208	1,305.841	1,424.049	1,424.049

Remarks
Target Value of the RQ-4 EMD, IDIQ, and EPIC Contracts is not segregated by Budget Project Number.

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Non Prime Technical Support	Various	Various : Dayton, OH	0.000	0.000		0.000		0.267	Feb 2017	0.000		0.267	10.942	11.209	-
Subtotal			0.000	0.000		0.000		0.267		0.000		0.267	10.942	11.209	-

Remarks
Target Value of the RQ-4 effort is not segregated by Budget Project Number.

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Flight Test & Evaluation	MIPR	412 TW : Edwards AFB, CA	0.000	0.000		0.000		0.000		0.000		0.000	157.296	157.296	-
Subtotal			0.000	0.000		0.000		0.000		0.000		0.000	157.296	157.296	-

Remarks
Target Value of the RQ-4 effort is not segregated by Budget Project Number.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305220F / RQ-4 UAV	Project (Number/Name) 675149 / RQ-4 Capability Enhancements
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Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
PMA: A&AS	Various	Various : Dayton, OH	0.000	0.000		0.000		2.018	Nov 2016	0.000		2.018	41.331	43.349	-
PMA: Other Government Costs	Various	Varous : Dayton, OH	0.000	0.000		0.000		1.345	Oct 2016	0.000		1.345	25.820	27.165	-
Subtotal			0.000	0.000		0.000		3.363		0.000		3.363	67.151	70.514	-

Remarks
Target Value of the RQ-4 effort is not segregated by Budget Project Number.

	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.000	0.000	121.838	0.000	121.838	1,541.230	1,663.068	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305220F / RQ-4 UAV	Project (Number/Name) 675149 / RQ-4 Capability Enhancements
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	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Sensor Enhancements & Upgrades (MS-177) Development																												
Ice Protection System Development																												
Ground Segment Maintenance/Upgrades Development																												
Ground Segment Modernization Program Development																												
Comms Systems Maintenance/Upgrades Development																												
Communication System Modernization Program Development																												
Program Protection Development																												
Next Gen Comms Development																												
Operational Flight Program Updates & Releases Development																												
Test Support																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305220F / RQ-4 UAV	Project (Number/Name) 675149 / RQ-4 Capability Enhancements
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Sensor Enhancements & Upgrades (MS-177) Development	1	2017	2	2019
Ice Protection System Development	3	2017	3	2019
Ground Segment Maintenance/Upgrades Development	1	2017	4	2018
Ground Segment Modernization Program Development	1	2017	2	2020
Comms Systems Maintenance/Upgrades Development	1	2017	3	2019
Communication System Modernization Program Development	2	2018	4	2021
Program Protection Development	3	2018	4	2021
Next Gen Comms Development	1	2020	4	2021
Operational Flight Program Updates & Releases Development	3	2017	4	2021
Test Support	1	2017	4	2021

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0305220F / RQ-4 UAV				Project (Number/Name) 67RTIP / MP-RTIP			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
67RTIP: MP-RTIP	212.455	10.926	16.092	7.468	0.000	7.468	11.901	11.899	12.112	12.330	0.000	295.183
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Project MDAP/MAIS Code: 293

Note

Beginning in FY09, the Multi-Platform Radar Technology Insertion Program (MP-RTIP) funding was transferred to program 0305220F (RQ-4) Global Hawk (GH). Therefore, the data in this package includes only FY09 and subsequent funding related to program 0305220F.

A. Mission Description and Budget Item Justification

The MP-RTIP sensor was designed as a family of modular, scalable sensors to provide next generation capabilities to support sustainable network centric operations with integrated Command and Control, Intelligence, Surveillance and Reconnaissance (C2ISR) capability. MP-RTIP provides the RQ-4 Block 40 aircraft with advanced Synthetic Aperture Radar (SAR) and Moving Target Indicator (MTI) sensor capabilities.

This project (67RTIP) includes all MP-RTIP integration efforts for the RQ-4 Block 40 Platform. Integration activities include platform integration of the MP-RTIP sensor and sustainment logistics planning support. MP-RTIP studies and development insertion include the implementation of Maritime Modes (MM), Maritime Inverse SAR (MISAR), product improvements and other advanced capabilities.

Activities also include studies and analysis supporting current and future program planning and future modes development based on user requirements. This program is in Budget Activity 7, Operational System Development, because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2015	FY 2016	FY 2017
Title: Development and Integration	10.070	16.092	7.468
Description: MP-RTIP development and integration			
FY 2015 Accomplishments:			
- Completed development of the MP-RTIP RSD 1.4 increment (1.4.6) software build for integration into the RQ-4 Block 40 aircraft for IOT&E.			
- Initiated development of the MP-RTIP RSD 1.5 software build which includes US Maritime Modes. Aligned development support for continuation of RSD 1.5 to support transition to sustainment.			
FY 2016 Plans:			

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305220F / RQ-4 UAV	Project (Number/Name) 67RTIP / MP-RTIP
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
- Continuing development of the MP-RTIP RSD 1.5 software build.			
FY 2017 Plans: - Will complete the development of the MP-RTIP RSD 1.5 software build enabling sustainment to take the build to the GHSC phase. Will transition future radar development efforts to the GH Block 40 program office by December 2016.			
Title: Test & Evaluation Description: MP-RTIP Test & Evaluation	0.856	0.000	0.000
FY 2015 Accomplishments: - Completed MP-RTIP Test & Evaluation support for RSD 1.4.6 flight tests. Completed ad hoc testing for an emergency field update to the warfighter related to the year change from 2014 to 2015.			
FY 2016 Plans: - Rigorous testing of RSD 1.5 intermediate software builds in the Radar System Integration Lab. - Flight testing will be accomplished by the Global Hawk Program Office with support from the MP-RTIP Program Office.			
FY 2017 Plans: - N/A			
Accomplishments/Planned Programs Subtotals	10.926	16.092	7.468

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u> <u>Base</u>	<u>FY 2017</u> <u>OCO</u>	<u>FY 2017</u> <u>Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• APAF: BA04: Line Item # HAEUAV: RQ-4	54.475	29.900	12.966	0.000	12.966	0.000	0.000	0.000	0.000	0.000	3,810.159
• APAF: BA05: Line Item # HAWK00: RQ-4 Mods	21.354	50.022	32.045	0.000	32.045	55.305	81.078	40.029	155.662	642.863	1,481.419
• RDT&E: BA07: PE 0305238F: NATO AGS	232.851	138.400	38.904	0.000	38.904	0.000	0.000	0.000	0.000	0.000	765.541

Remarks

D. Acquisition Strategy
MP-RTIP Project funds for FY17 and out years are slated to fund new development of warfighter requested AN/ZPY-2 modes and further refine or enhance current capability, as well as addressing critical deficiencies as they are identified in the field.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305220F / RQ-4 UAV	Project (Number/Name) 67RTIP / MP-RTIP

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305220F / RQ-4 UAV	Project (Number/Name) 67RTIP / MP-RTIP
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
MP-RTIP	SS/CPFF	Northrop Grumman Integrated Systems : El Segundo, CA	169.891	8.159	Feb 2016	13.188	Nov 2015	5.478	Nov 2016	0.000		5.478	37.592	234.308	TBD
Subtotal			169.891	8.159		13.188		5.478		0.000		5.478	37.592	234.308	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
IRT Study	Various	Various : Various	0.105	0.000		0.000		0.000		0.000		0.000	0.000	0.105	0.105
Logistics Planning	SS/CPFF	Northrop Grumman Integrated Systems : El Segundo, CA	3.667	0.000		0.000		0.000		0.000		0.000	0.000	3.667	3.667
Subtotal			3.772	0.000		0.000		0.000		0.000		0.000	0.000	3.772	3.772

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Flight Test & Evaluation	MIPR	Various : Various	8.936	0.856	Jan 2015	0.000		0.000		0.000		0.000	0.000	9.792	TBD
Subtotal			8.936	0.856		0.000		0.000		0.000		0.000	0.000	9.792	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
PMA: A&AS	C/CPFF	Various : Various	26.180	1.804	Nov 2014	2.821	Nov 2015	1.723	Nov 2016	0.000		1.723	8.520	41.048	TBD
PMA: Other Gov't Cost	Various	Various : Boston, MA	3.676	0.107	Nov 2014	0.083	Nov 2015	0.267	Nov 2016	0.000		0.267	2.130	6.263	TBD
Subtotal			29.856	1.911		2.904		1.990		0.000		1.990	10.650	47.311	-

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305220F / RQ-4 UAV	Project (Number/Name) 67RTIP / MP-RTIP
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	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

RSD 1.5 Software Build Development																												
IOT&E Readiness & IOT&E																												
Future Radar Development Builds																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305220F / RQ-4 UAV	Project (Number/Name) 67RTIP / MP-RTIP
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
RSD 1.5 Software Build Development	2	2015	1	2017
IOT&E Readiness & IOT&E	4	2015	1	2016
Future Radar Development Builds	1	2017	4	2021

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0305221F / <i>Network-Centric Collaborative Targeting</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	-	11.096	19.587	22.610	0.000	22.610	17.788	15.958	16.454	16.815	Continuing	Continuing
675197: <i>NCCT Core Technology</i>	-	11.096	17.271	20.115	0.000	20.115	15.248	13.372	13.821	14.135	Continuing	Continuing
675275: <i>SUTER</i>	-	0.000	2.316	2.495	0.000	2.495	2.540	2.586	2.633	2.680	Continuing	Continuing

Note

In FY 2016, PE 0305221, Network-Centric Collaborative Targeting, Project 675197 efforts for SUTER were transferred to PE 0305221, Network-Centric Collaborative Targeting, Project 675275, SUTER in order to ensure dedicated RDT&E funding to develop SUTER capabilities.

A. Mission Description and Budget Item Justification

Network Centric Collaborative Targeting (NCCT) is the Air Force program of record responsible for developing core technologies and sub-nodal analysis tools to horizontally and/or vertically integrated network collaborative Intelligence, Surveillance and Reconnaissance (ISR) sensor systems within and across intelligence disciplines. Operational uses of core technologies can include, but are not limited to, Signals Intelligence to Signals Intelligence (SIGINT-SIGINT) correlation and Ground Moving Target Indicator to Signals Intelligence (GMTI-SIGINT) correlation. Operational uses of sub-nodal analysis tools can include, but are not limited to, determining which nodes of the adversary's Command, Control, Communications, Computers, Intelligence (C4I) network to engage or protect to achieve desired effects, and modeling execution plans to determine the need to disrupt or monitor the required network aim-points in order to redirect activities based on changing battlefield conditions. NCCT software applications employ Machine-to-Machine (M2M) interfaces and Internet Protocol (IP) connectivity to coordinate sensor cross-cues and collection activities. NCCT correlation and fusion services ingest collection data to produce a single, composite track (geo-location and identification) for high-value targets. NCCT research and development funding supports evolutionary development of the NCCT message set and network management systems (for example Operations Interfaces, Network Controllers, Fusion Engines, Data Guards, Interface to Command & Control, and Interface to Overhead Intelligence Operations (OIO)), the migration of the NCCT technologies to emerging network centric technologies such as Service Oriented Architectures (SOA), global web-enabled services, and satisfying DoD standards and Information Assurance requirements.

NCCT Core Technology develops the hardware and software to horizontally integrate dissimilar Joint and Coalition Battle Management, Command & Control (BMC2), and ISR assets and systems into integrated target tracks shared across networked platforms. NCCT Core Technology includes, but is not limited to, network management software, operator interfaces, standard network messages and formats, correlation software and data rules of interaction, NCCT multi-level security hardware and software items, and platform specific Platform Interface Modules (PIMs). Current NCCT-enabled systems include, but are not limited to, the RC-135V/W/S/U RIVET JOINT, COBRA BALL, COMBAT SENT, EC-130H COMPASS CALL, Distributive Common Ground System (DCGS) SIGINT components, Falconer Aerospace Operations Centers (AOC), Forward Processing/Exploitation/Dissemination (FPED), Gorgon Stare (GS), OIO, and multiple airborne coalition partner platforms. Prospective Coalition, Joint or Service systems are required to fund their respective integration, unique core technology improvements/upgrades to support system integration. The FY 2017 RDT&E funding in response to Air Combat Command's validated requirement to allow not only NCCT to sustain the capability to operate in a tactical environment but in addition provide development in the Core Technology to provide enhanced capabilities for an Anti-Access Area Denial (A2AD) strategy in the future.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0305221F / <i>Network-Centric Collaborative Targeting</i>	
<p>SUTER develops concepts, Tactics/Techniques/Procedures (TTPs) and technologies for synchronizing the capabilities of ISR and non-kinetic capabilities in a coordinated fashion with traditional kinetic weapons to prosecute targets connected together or dependent upon some form of communications network. Suter's planning, execution and assessment capability is implemented in a virtual architecture available to all AOCs, taking advantage of the military value added from the synergies of Joint composite ISR, non-kinetic, and/or kinetic strike packages operating against networked target sets. This virtualized Service Oriented Architecture (SOA) utilizes software applications which employ M2M interfaces and IP communications to impact these target sets by "attacking" or influencing/shaping links, nodes or end points in the network to include: RF and terrestrial links, switches, routers, hubs, servers, IP addresses, cell phones, antennas, radars, microwave relays, SATCOM receivers, transceivers, etc. The three main pieces of the Suter CONOPS include: first, the use of Suter's sub-nodal analysis software to determine which nodes of the adversary's C4I network to engage or protect to achieve desired effects; second, the Suter's distributed operations architecture to tie together relevant planning cells (e.g. AOCs, JIOWC, etc.) so they can collaborate in developing and modeling the execution plan(s) needed to disrupt or monitor the required network aim-points; and third, via Suter's combined network Graphical User Interface (GUI), all involved "players" monitor the plan's execution, provide Near-Real Time (NRT) updates to the status of on-going activities, provide continuous assessment/updates of the execution of the plan, and, within authorities (Rules of Engagement/ROEs), re-direct activities based on changing battlefield conditions. Suter is the technology that assists Combatant Commanders and Components to exercise synchronized dynamic Command and Control (C2) of ISR, kinetic and non-kinetic Joint operations against conventional and terrorist threat networks. Suter provides decision makers and operators supporting airborne, ship-borne, cyber and land-based C2ISR platforms and at supporting locations continuous Predictive Battle-space Awareness (PBA) of the information superiority fight. It also incorporates the M2M capabilities that rapidly synchronize the employment of kinetic weapons, non-kinetic weapons and ISR assets to target challenging threat systems responsively. Suter depicts a dynamic, multi-security-level picture of current and predicted threat network status, capitalizing on data inputs from sources such as Modernized Intelligence Database (MIDB), Net-Centric Collaborative Targeting (NCCT), Joint Targeting Database (JTDB), Computer Network Operations Database (CNODB), NASIC Links and Nodes, and Integrated Broadcast Service (IBS). Suter provides a GUI that can be tailored to support the integration of ISR, kinetic, and non-kinetic composite target packages supporting COCOM and Component specified information superiority effects and objectives.</p> <p>FY 2017 funding is dedicated to upgrading the virtualized SOA for the operational Suter system delivered in FY 2015, consisting of improvements in core technology security/Information Assurance, and addition of additional systems and data types.</p> <p>The NCCT program is categorized as Budget Activity 7, Operational System Development, because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.</p>		

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0305221F / <i>Network-Centric Collaborative Targeting</i>
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B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	11.096	21.587	21.235	0.000	21.235
Current President's Budget	11.096	19.587	22.610	0.000	22.610
Total Adjustments	0.000	-2.000	1.375	0.000	1.375
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	-2.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	1.375	0.000	1.375

Change Summary Explanation

Larger funding requirements in FY 2016 and FY 2017 were the result of (1) an Air Combat Command validated requirement to add capability to NCCT for the transition to an Anti-Access Area Denial (A2AD) strategy and (2) planned upgrades to the operational SUTER system delivered in FY 2015.

FY 2016 \$2M Congressional Reduction due to NCCT Version 5.0.4 early to need.

FY 2017 \$1.375M was added to develop Air Domain Awareness, an Air Moving Target Indicator (AMTI) correlation capability.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305221F / <i>Network-Centric Collaborative Targeting</i>	Project (Number/Name) 675197 / <i>NCCT Core Technology</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
675197: <i>NCCT Core Technology</i>	-	11.096	17.271	20.115	0.000	20.115	15.248	13.372	13.821	14.135	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In FY 2016, PE 0305221, Network-Centric Collaborative Targeting, Project 675197 efforts for SUTER were transferred to PE 0305221, Network-Centric Collaborative Targeting, Project 675275, SUTER in order to ensure dedicated RDT&E funding to develop SUTER capabilities.

A. Mission Description and Budget Item Justification

Network Centric Collaborative Targeting (NCCT) is the Air Force program of record responsible for developing core technologies and sub-nodal analysis tools to horizontally and/or vertically integrate network collaborative Intelligence, Surveillance and Reconnaissance (ISR) sensor systems within and across intelligence disciplines. Operational uses of core technologies would include, but are not be limited to, Signals Intelligence to Signals Intelligence (SIGINT-SIGINT) correlation and Ground Moving Target Indicator to Signals Intelligence (GMTI-SIGINT) correlation. NCCT software applications employ Machine-to-Machine (M2M) interfaces and Internet Protocol (IP) connectivity to coordinate sensor cross-cues and collection activities. NCCT correlation and fusion services ingest collection data to produce a single, composite track (geo-location and identification) for high-value targets. NCCT research and development funding supports evolutionary development of the NCCT message set and network management systems (for example Operations Interfaces, Network Controllers, Fusion Engines, Data Guards, Interface to Command & Control, and Interface to Overhead Intelligence Operations (OIO)), the migration of the NCCT technologies to emerging network centric technologies such as Service Oriented Architectures (SOA), global web-enabled services, and satisfying DoD standards and Information Assurance requirements.

NCCT Core Technology develops the hardware and software to horizontally integrate dissimilar Joint and Coalition Battle Management, Command & Control (BMC2), and ISR assets and systems into integrated target tracks shared across networked platforms. NCCT Core Technology includes, but is not limited to, network management software, operator interfaces, standard network messages and formats, correlation software and data rules of interaction, NCCT multi-level security hardware and software items, and platform specific Platform Interface Modules (PIMs). Current NCCT-enabled systems include, but are not limited to, the RC-135V/ W/S/U RIVET JOINT, COBRA BALL, COMBAT SENT, EC-130H COMPASS CALL, Distributive Common Ground System (DCGS) SIGINT components, Falconer Aerospace Operations Centers (AOC), Forward Processing/Exploitation/Dissemination (FPED), Gorgon Stare (GS), OIO, and multiple airborne coalition partner platforms. Prospective Coalition, Joint or Service systems are required to fund their respective integration, unique core technology improvements/upgrades to support system integration. The FY 2017 RDT&E funding will address Air Combat Command's validated requirement to allow not only NCCT to sustain the capability to operate in a tactical environment but in addition provide development in the Core Technology to provide enhanced capabilities for an Anti-Access Area Denial (A2AD) strategy in the future.

The NCCT program is categorized as Budget Activity 7, Operational System Development, because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305221F / <i>Network-Centric Collaborative Targeting</i>	Project (Number/Name) 675197 / <i>NCCT Core Technology</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>Title: Core Technology</p> <p>Description: Accomplishments and planned efforts include development and update of NCCT Core Technology; technical support to users, and management activities</p> <p>FY 2015 Accomplishments:</p> <ul style="list-style-type: none"> - Delivered NCCT version 5.0.2 which included required improvements in core technology security/information to sustain legacy and SOA systems, security software to attain CNSS-1253 accreditation (required for NSANET operations), and a more technically mature GMTI-SIGINT correlation capability for operational systems - Evaluated collaboration of additional capabilities, systems, and data feeds for future NCCT increments <p>FY 2016 Plans:</p> <ul style="list-style-type: none"> - NCCT will begin initial integration of Link 16 Ingest, Air Moving Target Indicator (AMTI) correlation capability, and develop Distributed Mission Operations and Training (DMO/DMT) Capability - NCCT will continue evaluating collaboration of additional systems and data types, such as OPIR Fusion and demonstration of National-to-Tactical Fusion for the technology enhancements required for NCCT to operate in an Anti-Access Area Denial (A2AD) environment <p>FY 2017 Base Plans:</p> <ul style="list-style-type: none"> - NCCT will continue to mature the integration of Link 16 Ingest, Air Moving Target Indicator (AMTI) correlation capability, and develop Distributed Mission Operations and Training (DMO/DMT) Capability - NCCT will also continue evaluating and begin to develop capabilities for collaboration of additional systems and data types, such as OPIR Fusion and demonstration of National-to-Tactical Fusion for the technology enhancements required for NCCT to operate in an Anti-Access Area Denial (A2AD) environment <p>FY 2017 OCO Plans:</p> <ul style="list-style-type: none"> - N/A 	11.096	17.271	20.115	0.000	20.115
Accomplishments/Planned Programs Subtotals	11.096	17.271	20.115	0.000	20.115

C. Other Program Funding Summary (\$ in Millions)										
Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete Total Cost
• OPAF: BA03: Line Item # 832070: <i>Intelligence Comm Equipment</i>	2.974	2.418	2.583	0.000	2.583	3.281	3.087	3.141	3.198	Continuing Continuing

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305221F / <i>Network-Centric Collaborative Targeting</i>	Project (Number/Name) 675197 / <i>NCCT Core Technology</i>

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

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u> <u>Base</u>	<u>FY 2017</u> <u>OCO</u>	<u>FY 2017</u> <u>Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
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Remarks

D. Acquisition Strategy

The NCCT Core Technology capabilities are developed, maintained and sustained with baseline/incremental upgrades plus any Quick Reaction Capability (QRC) developments acquired through the 645th Aeronautical System Group (AESG, a.k.a. BIG SAFARI System Program Office or SPO) in accordance with the BIG SAFARI Program Management Directive (PMD) and the BIG SAFARI Class Justification and Authorization (J&A) documents for acquisition of supplies and services. The procured supplies and services are supported by the BIG SAFARI Life Cycle Management Plan (LCMP) across the full spectrum of system life cycle management -- developmental engineering to system retirement ("cradle to grave" support concept). Due to the rapidly changing threat environment encountered during our prolonged commitment to Overseas Contingency Operations (OCO), the acquisition program manager has the authority to redirect funding as necessary to meet current stated and emerging/evolving Combatant Commander requirements.

645th AESG, Wright Patterson AFB OH, manages the Cost Plus Fixed Fee (CPFF) contracts used to develop the NCCT Core Technology. 645th AESG will develop NCCT Core Technology software on common hardware for systems and platforms designated to field this ISR capability. Individual program management offices may contract directly with their prime contractors or through the 645th AESG for integration of these ISR capabilities on their respective systems and platforms.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305221F / <i>Network-Centric Collaborative Targeting</i>	Project (Number/Name) 675197 / <i>NCCT Core Technology</i>
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Core Technology	SS/CPFF	L-3 ComCept : Rockwall, TX	-	2.900	Mar 2015	16.549	Mar 2016	19.353	Mar 2017	0.000		19.353	Continuing	Continuing	TBD
Core Tech	SS/CPFF	L-3 ComCept : Rockwall, TX	-	4.811	Sep 2015	0.000		0.000		0.000		0.000	Continuing	Continuing	-
SUTER	SS/CPFF	Analyst Warehouse : Baltimore, MD	-	2.565	May 2015	0.000		0.000		0.000		0.000	Continuing	Continuing	-
Subtotal			-	10.276		16.549		19.353		0.000		19.353	-	-	-

Remarks
Prior to FY 2016, SUTER was funded with NCCT Core Technology BPAC (675197). In FY 2016, the SUTER BPAC (675275) was established and funding for SUTER development will be reflected accordingly in those documents.

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Security Certification/ Technical Engineering	SS/CPFF	Riverside Research Institute : Dayton, OH	-	0.320	Jan 2015	0.274	Jan 2016	0.000		0.000		0.000	Continuing	Continuing	TBD
Subtotal			-	0.320		0.274		0.000		0.000		0.000	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305221F / <i>Network-Centric Collaborative Targeting</i>	Project (Number/Name) 675197 / <i>NCCT Core Technology</i>

	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Core Tech Version 5.0.2 Development, Integration, and Test	██████████																											
Core Tech Version 5.0.3 Development, Integration, and Test					██████████																							
Core Tech Version 5.0.4 Development, Integration, and Test									██████████																			
Core Tech Version 5.0.5 Development, Integration, and Test													██████████															
Core Tech Version 5.0.6 Development, Integration, and Test																					██████████							

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305221F / <i>Network-Centric Collaborative Targeting</i>	Project (Number/Name) 675197 / <i>NCCT Core Technology</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Core Tech Version 5.0.2 Development, Integration, and Test	1	2015	2	2016
Core Tech Version 5.0.3 Development, Integration, and Test	1	2016	4	2017
Core Tech Version 5.0.4 Development, Integration, and Test	3	2016	3	2018
Core Tech Version 5.0.5 Development, Integration, and Test	2	2018	1	2020
Core Tech Version 5.0.6 Development, Integration, and Test	2	2020	4	2021

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305221F / <i>Network-Centric Collaborative Targeting</i>	Project (Number/Name) 675275 / <i>SUTER</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
675275: <i>SUTER</i>	-	0.000	2.316	2.495	0.000	2.495	2.540	2.586	2.633	2.680	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In FY 2016, PE 0305221, Network-Centric Collaborative Targeting, Project 675197 efforts for SUTER were transferred to PE 0305221, Network-Centric Collaborative Targeting, Project 675275, SUTER in order to ensure dedicated RDT&E funding to develop SUTER capabilities.

A. Mission Description and Budget Item Justification

SUTER is a project responsible for developing sub-nodal analysis tools to horizontally and/or vertically integrate network collaborative Intelligence, Surveillance, and Reconnaissance (ISR) sensor systems within and across intelligence disciplines. Operational uses of sub-nodal analysis tools would include, but are not limited to, determining which nodes of the adversary's Command, Control, Communications, Computers, Intelligence (C4I) network are engaged or protected to achieve desired effects, and modeling execution plans to determine the need to disrupt or monitor the required network aim-points in order to redirect activities based on changing battlefield conditions.

SUTER develops concepts, Tactics/Techniques/Procedures (TTPs) and technologies for synchronizing the capabilities of ISR and non-kinetic capabilities in a coordinated fashion with traditional kinetic weapons to prosecute targets connected together or dependent upon some form of network. SUTER's planning, execution and assessment capability is implemented in a virtual architecture available to all AOCs, taking advantage of the military value added from the synergies of Joint composite ISR, non-kinetic, and/or kinetic strike packages operating against networked target sets. This virtualized Service Oriented Architecture (SOA) utilizes software applications which employ machine-to-machine interfaces and Internet Protocol (IP) communications to impact these target sets by "attacking" or influencing/shaping links, nodes or end points in the network to include: RF and terrestrial links, switches, routers, hubs, servers, IP addresses, cell phones, antennas, radars, microwave relays, SATCOM receivers, transceivers, etc. The three main pieces of the SUTER CONOPS include: first, the use of SUTER's sub-nodal analysis software to determine which nodes of the adversary's C4I network to engage or protect to achieve desired effects; second, the use of SUTER's distributed operations architecture to tie together relevant planning cells (e.g. AOCs, JIOWC, etc.) so they can collaborate in developing and modeling the execution plan(s) needed to disrupt or monitor the required network aim-points; and third, via SUTER's combined network Graphical User Interface (GUI), all involved "players" monitor the plan's execution, provide Near-Real Time (NRT) updates to the status of on-going activities, provide continuous assessment/updates of the execution of the plan, and, within authorities (Rules of Engagement or ROEs), re-direct activities based on changing battlefield conditions. SUTER is the technology that assists COCOMs and Components to exercise synchronized dynamic Command and Control (C2) of ISR, kinetic and non-kinetic Joint operations against conventional and terrorist threat networks. SUTER provides decision makers and operators supporting airborne, ship-borne, cyber and land-based C2ISR platforms and at supporting locations continuous Predictive Battle-space Awareness (PBA) of the information superiority fight. It also incorporates the M2M capabilities that rapidly synchronize the employment of kinetic weapons, non-kinetic weapons and ISR assets to target challenging threat systems responsively. SUTER depicts a dynamic, multi-security-level picture of current and predicted threat network status, capitalizing on data inputs from sources such as Modernized Intelligence Database (MIDB), Net-Centric Collaborative Targeting (NCCT), Joint Targeting Database (JTDB), Computer Network Operations Database (CNODB), NASIC Links and Nodes, and Integrated Broadcast Service (IBS). SUTER provides a GUI

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305221F / <i>Network-Centric Collaborative Targeting</i>	Project (Number/Name) 675275 / SUTER
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that can be tailored to support the integration of ISR, kinetic, and non-kinetic composite target packages supporting Combatant Commands and Component specified information superiority effects and objectives across the full spectrum of conflict from tactical operations to an Anti-Access Area Denial (A2AD) strategy.

FY 2017 funding is dedicated to upgrading the virtualized SOA for the SUTER program system delivered in FY 2015, improvements in core technology security/ Information Assurance, and addition of additional systems and data types.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>Title: SUTER Software Development</p> <p>Description: Planned efforts include development and release of SUTER software upgrade.</p> <p>FY 2015 Accomplishments:</p> <ul style="list-style-type: none"> - Completed development of first increment of SUTER software upgrade effort - Continued the SUTER software development and testing which focused on machine-to-machine (M2M) interface capability and the SOA upgrades - Worked on security software to attain network accreditation which reduced time to pull information from other database sources, improve security management, and allow more flexibility for operational decision makers - Funding to continue these efforts was provided by Core Technology project within the NCCT PE <p>FY 2016 Plans:</p> <ul style="list-style-type: none"> - Delivering the first increment of SUTER to two AOCs providing world-wide access to all AOC users - Continuing development of further software upgrade increments improving security management, and allowing more flexibility for operational decision makers with a focus on incorporating additional data sources to inject into SUTER via M2M interface (data sources include Combatant Commanders targets, extensive telephone networks, and hierarchical adversary unit relationships) <p>FY 2017 Base Plans:</p> <ul style="list-style-type: none"> - Will continue further delivery of SUTER to all three AOC nodes - Will also continue further development of software upgrade increments improving security management and introducing flexibility upgrades for operational decision makers that will enable auto generation of target recommendations and data gap analysis focusing on tactical intelligence gathering and further expansion of data sources to inject into SUTER via M2M interface (one upgrade will include electrical power grids which will enable the modeling of basic power flow) <p>FY 2017 OCO Plans:</p>	0.000	2.316	2.495	0.000	2.495

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305221F / <i>Network-Centric Collaborative Targeting</i>	Project (Number/Name) 675275 / SUTER
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
- N/A					
Accomplishments/Planned Programs Subtotals	0.000	2.316	2.495	0.000	2.495

C. Other Program Funding Summary (\$ in Millions)												
<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To Complete</u>	<u>Total Cost</u>	
• N/A: N/A	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	-

Remarks

D. Acquisition Strategy
 The SUTER capabilities are developed, maintained and sustained with baseline/incremental upgrades plus any Quick Reaction Capability (QRC) developments acquired through the 645th Aeronautical System Group (AESG, a.k.a. BIG SAFARI System Program Office or SPO) in accordance with the BIG SAFARI Program Management Directive (PMD) and the BIG SAFARI Class Justification and Authorization (J&A) documents for acquisition of supplies and services. The procured supplies and services are supported by the BIG SAFARI Life Cycle Management Plan (LCMP) across the full spectrum of system life cycle management -- developmental engineering to system retirement ("cradle to grave" support concept). Due to the rapidly changing threat environment encountered during our prolonged commitment to Overseas Contingency Operations (OCO), the acquisition program manager has the authority to redirect funding as necessary to meet current stated and emerging/evolving Combatant Commander requirements. 645th AESG, Wright Patterson AFB OH, manages the Cost Plus Fixed Fee (CPFF) contracts used to develop SUTER. 645th AESG will develop SUTER software on common hardware for systems and platforms designated to field this ISR capability. Individual program management offices may contract directly with their prime contractors or through the 645th AESG for integration of these ISR capabilities on their respective systems and platforms.

E. Performance Metrics
 Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305221F / <i>Network-Centric Collaborative Targeting</i>	Project (Number/Name) 675275 / <i>SUTER</i>
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
SUTER	SS/CPFF	Analyst Warehouse, LLC : Baltimore, MD	-	0.000		2.081	Feb 2016	2.243	Feb 2017	0.000		2.243	Continuing	Continuing	TBD
Subtotal			-	0.000		2.081		2.243		0.000		2.243	-	-	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Development Test	SS/CPFF	Analyst Warehouse, LLC : Baltimore, MD	-	0.000		0.235	Feb 2016	0.252	Feb 2017	0.000		0.252	Continuing	Continuing	TBD
Subtotal			-	0.000		0.235		0.252		0.000		0.252	-	-	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

			Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	0.000	2.316	2.495	0.000	2.495	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305221F / <i>Network-Centric Collaborative Targeting</i>	Project (Number/Name) 675275 / SUTER
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	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

SUTER 6.1.1 Development, Integration, and Test	██████████																											
SUTER 6.1.2 Development, Integration, and Test	██████████																											
SUTER 6.1.3 Development, Integration, and Test	██████████																											
SUTER 6.1.4 Development, Integration, and Test	██████████																											
SUTER 6.1.5 Development, Integration, and Test	██████████																											
SUTER 6.1.6 Development, Integration, and Test	██████████																											
SUTER 6.1.7 Development, Integration, and Test	██████████																											
SUTER 6.1.8 Development, Integration, and Test	██████████																											
SUTER 6.1.9 Development, Integration, and Test	██████████																											
SUTER 6.1.10 Development, Integration, and Test	██████████																											
SUTER 6.1.11 Development, Integration, and Test	██████████																											
SUTER 6.1.12 Development, Integration, and Test	██████████																											
SUTER 6.1.13 Development, Integration, and Test	██████████																											

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305221F / <i>Network-Centric Collaborative Targeting</i>	Project (Number/Name) 675275 / <i>SUTER</i>
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	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
SUTER 6.1.14 Development, Integration, and Test	[REDACTED]																											

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305221F / <i>Network-Centric Collaborative Targeting</i>	Project (Number/Name) 675275 / SUTER

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
SUTER 6.1.1 Development, Integration, and Test	1	2015	4	2015
SUTER 6.1.2 Development, Integration, and Test	3	2015	2	2016
SUTER 6.1.3 Development, Integration, and Test	2	2016	4	2016
SUTER 6.1.4 Development, Integration, and Test	4	2016	2	2017
SUTER 6.1.5 Development, Integration, and Test	2	2017	4	2017
SUTER 6.1.6 Development, Integration, and Test	4	2017	2	2018
SUTER 6.1.7 Development, Integration, and Test	2	2018	4	2018
SUTER 6.1.8 Development, Integration, and Test	4	2018	2	2019
SUTER 6.1.9 Development, Integration, and Test	2	2019	4	2019
SUTER 6.1.10 Development, Integration, and Test	4	2019	2	2020
SUTER 6.1.11 Development, Integration, and Test	2	2020	4	2020
SUTER 6.1.12 Development, Integration, and Test	4	2020	2	2021
SUTER 6.1.13 Development, Integration, and Test	2	2021	4	2021
SUTER 6.1.14 Development, Integration, and Test	4	2021	4	2021

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0305236F / <i>Common Data Link Executive Agent (CDL EA)</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	-	32.015	43.796	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
674819: <i>Common Data Link (CDL)</i>	-	32.015	43.796	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Common Data Link Executive Agent (CDL EA) provides the DoD standard for interoperable, multi-service, multi-agency, Intelligence, Surveillance, and Reconnaissance (ISR) datalinks for 10,000+ DoD manned/unmanned airborne and ground platforms. As the DoD CDL EA, the Air Force is responsible for cross-service application of CDL RDT&E Military Intelligence Program (MIP) funds facilitating compliance to Congressional and DoD mandates. The EA develops, modifies, distributes, and maintains specifications for the CDL waveform family; ensuring design configuration control, commonality, and interoperability among ISR platforms. Additionally, funds support managing resources allocated for development, maturation, and migration of CDL technologies.

CDL EA enables compliance with OSD and Congressional mandates to effectively utilize spectrum, use approved cryptographic equipment, and provide direct support to current operations. CDL is a vital link in DoD's existing and emerging communication architectures, providing flexibility to accommodate Command and Control (C2) data and myriad types of Signals Intelligence (SIGINT), Geospatial Intelligence (GEOINT), and Full-Motion Video (FMV) data. The CDL specifications permit current and future ISR asset operations worldwide by providing sensor data directly via point-to-point broadcast to ground sites, airborne platforms and dismounted users. Also, CDL provides the capability to relay data via air-to-air or compatible satellite links when the asset and ground site are not in line-of-sight.

CDL EA's research and development activities support a broad swath of tactical, operational, and strategic ISR users and include achieving higher data rates, multi-access and multi-node network management, crypto upgrade, advancements needed to operate in contested environments, terminal and antenna design enhancements, operations in other spectral bands, and improving spectrum efficiency. Further, CDL development improves large area surveillance missions while supporting continuous improvements and implementation of line-of-sight platform and CDL terminal Command and Control (C2), plus increased ISR (C2ISR) capabilities. Activities also include studies and analysis to support current and future requirements documentation, program planning and execution. CDL prototype terminal designs provide for future technology insertion and reduce non-recurring engineering and life-cycle costs to the user.

In addition, the Gigabit Encryption thrust enables CDL to develop a miniaturized gigabit rate Communication Security (COMSEC) device capable of managing CDL data. The miniaturized COMSEC device will allow faster throughput while reducing Size, Weight, and Power (SWaP) requirements.

This program is in Budget Activity 7, Operational System Development, because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0305236F / <i>Common Data Link Executive Agent (CDL EA)</i>
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B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	32.015	43.986	42.760	0.000	42.760
Current President's Budget	32.015	43.796	0.000	0.000	0.000
Total Adjustments	0.000	-0.190	-42.760	0.000	-42.760
• Congressional General Reductions	0.000	-0.190			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	-42.760	0.000	-42.760

Change Summary Explanation

FY 2017: PE 0305236F, Common Data Link Executive Agent (CDL EA), Project 674819, Common Data Link (CDL) efforts were transferred to PE 0305236F, Common Data Link Executive Agent (CDL EA), Project 641334, Common Data Link (CDL)

C. Accomplishments/Planned Programs (\$ in Millions)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Common Data Link (CDL) Technology Advancement	18.229	31.796	0.000	0.000	0.000
Description: CDL evolutionary terminal development, advanced technology insertion, demonstrations and studies per CDL Integrated Product Team (IPT) direction to the CDL Executive Agent (CDL EA).					
FY 2015 Accomplishments: Continued development and testing of Higher Data Rates to existing and emerging terminals, while also prototyping terminal development that combines Size, Weight and Power (SWaP) improvements with higher data rate capability. Continued development of technology that allows for adapting and testing of networking, as well as more effective ground and lightweight airborne terminal components. Continued to move forward with development of multispectral operations flexibility, increased spectrum efficiency and integration of improved transmission components. Continued development of enhanced, CDL-based ISR communications capabilities across multiple platforms and rapid prototyping efforts. Continued support of emerging communication backbone architecture development across air, space and terrestrial layers, to include: agile high capacity data transport, assured communications and multi-mode access networks.					
FY 2016 Plans:					

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0305236F / <i>Common Data Link Executive Agent (CDL EA)</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
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Continue development and testing of Higher Data Rates to existing and emerging terminals, while also prototyping terminal development that combines Size, Weight and Power (SWaP) improvements with higher data rate capability. Continue development of technology that allows for adapting and testing of networking, as well as more effective ground and lightweight airborne terminal components. Continue to move forward with development of multispectral operations flexibility, increased spectrum efficiency and integration of improved transmission components. Continue development of enhanced, CDL-based ISR communications capabilities across multiple platforms and rapid prototyping efforts. Continue support of emerging communication backbone architecture development across air, space and terrestrial layers, to include: agile high capacity data transport, assured communications and multi-mode access networks.					
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FY 2017 Base Plans:
 In FY17 these activities will be reported in Budget Activity 4, PE 0305236F, Project 641334, CDL

FY 2017 OCO Plans:
 N/A

Title: Common Data Link (CDL) Specification Maintenance and Development	11.586	5.000	0.000	0.000	0.000
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Description: CDL specification testing, maintenance, development, validation, configuration control, and distribution per CDL Integrated Product Team (IPT) direction to CDL Executive Agent (EA).

FY 2015 Accomplishments:
 Continued research and development upgrades of current and future specification employment profiles to include the adding of capabilities required to support the Joint Aerial Layer Network (JALN) High Capacity Backbone (HCB) and other emerging operational capabilities. Continued development of spectrally efficient CDL waveform specification, while planning for future A2AD enhancements. Continued to work with CDL industry partners and DoD Services to document, validate and implement common terminal control interfaces through the use of commercially recognized standards. Maintained configuration control of the CDL architecture, standards, specifications and modules. Continued development of CDL test equipment capable of compliance testing to the latest, validated version of CDL specifications.

FY 2016 Plans:
 Continue to research and development upgrades of current and future specification employment profiles that include the adding of capabilities required to support the Joint Aerial Layer Network (JALN) High Capacity Backbone (HCB), A2AD requirements, and other emerging operational capabilities. Continue the development of spectrally efficient CDL waveform specification, while gathering requirements and planning for future mesh

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0305236F / <i>Common Data Link Executive Agent (CDL EA)</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
networking enhancements. Continue to work with CDL industry partners and DoD Services to document, validate and implement common terminal control interfaces through the use of commercially recognized standards. Maintain configuration control of the CDL architecture, standards, specifications and modules. Continue the development of CDL test equipment capable of compliance testing to the latest, validated version of CDL specifications. FY 2017 Base Plans: In FY17 these activities will be reported in Budget Activity 4, PE 0305236F, Project 641334, CDL FY 2017 OCO Plans: N/A					
Title: Gigabit Encryption Description: Develop a miniaturized gigabit rate COMSEC device capable of handling CDL data rates. Miniaturizing COMSEC components will enable faster data throughput (greater than 12 GBPS) and reduce size, weight, and power. Once developed, CDL users will have to procure COMSEC components and fund installation/integration. FY 2015 Accomplishments: Continued the development effort to build the gigabit encryption device to be fielded on numerous platforms. This device allows faster data throughput and reduced size, weight and power constraints. FY 2016 Plans: Continue the development effort for small form factor modular COMSEC devices capable of gigabit rates. Conduct prototyping and testing of the second generation crypto core and design/development of the third generation crypto core. FY 2017 Base Plans: In FY17 these activities will be reported in Budget Activity 4, PE 0305236F, Project 641334, CDL FY 2017 OCO Plans: N/A	2.200	7.000	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals	32.015	43.796	0.000	0.000	0.000

D. Other Program Funding Summary (\$ in Millions)
N/A

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0305236F / <i>Common Data Link Executive Agent (CDL EA)</i>	
D. Other Program Funding Summary (\$ in Millions)		
Remarks		
E. Acquisition Strategy The Air Force, designated as the Common Data Link (CDL) Executive Agent, supported by each of the Services' CDL program's Service laboratories, the Airborne Network Division (AFLCMC/HNA), and the Defense Information Systems Agency (DISA), provide for development of interoperable ISR data links as mandated by the Assistant Secretary of Defense (Networks and Information Integration) (ASD(NII)) policy. Once CDL technology development matures, platforms are responsible for program CDL procurement, National Security Agency (NSA), Joint Interoperability Test Command (JITC), and DISA certifications, integration, and installation. Acquisition strategy varies by contract. When possible, contracts are awarded under full and open competition.		
F. Performance Metrics Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305236F / <i>Common Data Link Executive Agent (CDL EA)</i>	Project (Number/Name) 674819 / <i>Common Data Link (CDL)</i>
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
AF Gigabit Plus, AF IA Modernization, Army Spec, Army Through the Rotors, Network Management	C/CPFF	L-3 Communications : Salt Lake City, UT	-	7.451	Feb 2015	12.250	Feb 2016	0.000		0.000		0.000	Continuing	Continuing	-
Advanced Waveform Validation, Digital Beam Effort	C/CPFF	Cubic : San Diego, CA	-	2.024	Feb 2015	0.000		0.000		0.000		0.000	Continuing	Continuing	-
Multi-Access and Assured Communications Development	C/Various	Various : Various	-	2.200	Dec 2014	0.000		0.000		0.000		0.000	Continuing	Continuing	-
Marine CDL for Tactical UAS	C/Various	Various : Various	-	8.900	Feb 2015	8.540	Feb 2016	0.000		0.000		0.000	Continuing	Continuing	-
Terminals Database & Enterprise Roadmap	C/CPFF	Booz Allen : McClean, VA	-	1.010	Nov 2014	0.700	Jan 2016	0.000		0.000		0.000	Continuing	Continuing	-
Compliance Test Tool	C/Various	Various : Various	-	0.586	Dec 2014	3.921	Mar 2016	0.000		0.000		0.000	Continuing	Continuing	-
Under Threshold Combined	Various	Various : Various	-	0.000		1.375	Mar 2016	0.000		0.000		0.000	Continuing	Continuing	-
Subtotal			-	22.171		26.786		0.000		0.000		0.000	-	-	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Special studies, analysis, and engineering services	SS/CPFF	Johns Hopkins University/Applied Physics Lab : Laurel, MD	-	0.300	Jan 2015	0.300	Jan 2016	0.000		0.000		0.000	Continuing	Continuing	-
Service Tech Support & Spec Development	MIPR	Various : Various	-	2.565	Jan 2015	5.250	Jan 2016	0.000		0.000		0.000	Continuing	Continuing	-
ETASS Engineering Services	C/CPFF	Various : Various	-	0.524	Dec 2014	0.524	Feb 2016	0.000		0.000		0.000	Continuing	Continuing	-
Subtotal			-	3.389		6.074		0.000		0.000		0.000	-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305236F / <i>Common Data Link Executive Agent (CDL EA)</i>	Project (Number/Name) 674819 / <i>Common Data Link (CDL)</i>
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Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Joint Interoperability Test Center (JITC)	MIPR	JITC : Fort Huachuca, AZ	-	0.000		0.925	Jan 2016	0.000		0.000		0.000	Continuing	Continuing	-
46 Test Squadron	PO	46 TS/OGEX : Eglin AFB, FL	-	0.140	Feb 2015	0.127	Feb 2016	0.000		0.000		0.000	Continuing	Continuing	-
Subtotal			-	0.140		1.052		0.000		0.000		0.000	-	-	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
PMA- MITRE Engineering Support (FFRDC)	SS/T&M	MITRE Corp. : Bedford, MA	-	0.390	Oct 2014	0.390	Oct 2015	0.000		0.000		0.000	Continuing	Continuing	-
PMO/Service- MITRE Engineering Direct Mission Support (FFRDC)	SS/T&M	MITRE Corp. : Bedford, MA	-	4.479	Oct 2014	5.284	Oct 2015	0.000		0.000		0.000	Continuing	Continuing	-
PMA - PASS Financial and PM Support (A&AS)	C/CPFF	PE Systems : Littleton, MA	-	0.748	Feb 2015	0.766	Feb 2016	0.000		0.000		0.000	Continuing	Continuing	-
PMA - Under Threshold Program Mgmt/Tech Support	Various	Various : Various	-	0.698	Dec 2014	3.444	Mar 2016	0.000		0.000		0.000	Continuing	Continuing	-
Subtotal			-	6.315		9.884		0.000		0.000		0.000	-	-	-

	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals		-	32.015	43.796	0.000	0.000	-	-	-

Remarks

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305236F / <i>Common Data Link Executive Agent (CDL EA)</i>	Project (Number/Name) 674819 / <i>Common Data Link (CDL)</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
CDL Technology Advancement	1	2015	4	2016
- CDL Waveform RDTE	1	2015	4	2016
- Terminal Component Evolution and Test	1	2015	1	2016
- High Data Rate Terminal Development	1	2015	2	2016
- Low SWAP (SUAS) Prototype Terminal Development	1	2015	4	2016
- Assured Comm/Multi-Access Studies	1	2015	4	2016
CDL Specification Maintenance and Development	1	2015	4	2016
- Specification CM, Maintenance and Update (BE, Capstone)	1	2015	2	2016
- Development/Test Equipment (CWCT, RIL, CCI)	1	2015	4	2016
Gigabit Encryption	1	2015	4	2016
- US and Coalition Releasable Crypto Modules	1	2015	3	2015
- Multi-algorithm US/Coalition Crypto Modules	3	2015	4	2016
- Multi-sensor Aware/Shared State Crypto Modules	2	2016	4	2016

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force / BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0305238F / NATO AGS
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	-	232.851	138.400	38.904	0.000	38.904	0.000	0.000	0.000	0.000	0.000	410.155
676001: NATO AGS	-	232.851	138.400	38.904	0.000	38.904	0.000	0.000	0.000	0.000	0.000	410.155
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

Note

In FY 2017 Project: 676001, NATO AGS, will complete.

A. Mission Description and Budget Item Justification

This program funds the U.S. contribution to the Alliance Ground Surveillance (AGS) system, a North Atlantic Treaty Organization (NATO), Direct Commercial Sale acquisition. AGS is an airborne ground surveillance capability that provides continuous, wide area surveillance in all weather conditions. It will provide NATO decision makers with near real time information and situational awareness concerning friendly, neutral and opposing ground and maritime forces to support mission planning and execution, including force protection and targeting. All NATO nations will have access to AGS collection data, creating opportunities for burden sharing with similar U.S. assets.

The AGS program includes: air and ground segment acquisitions, operations of the NATO AGS Management Agency (NAGSMA), development of operations and support concepts and definition and establishment of an initial support capability. The air segment consists of five (5) air vehicles based on unique exportable configurations of the United States Air Force Global Hawk air frame, Navy Triton command and control architecture and the U.S. Multi-Platform Radar Technology Insertion Program (MP-RTIP) radar. The U.S. will also integrate new Maritime Moving Target and Inverse Synthetic Aperture Radar capability into the MP-RTIP radar for NATO AGS. The ground segment consists of fixed site and transportable/mobile ground stations for air vehicle Command and Control (C2), data exploitation and distribution. Operations and continuing In-Service Support will be funded through a future NATO Military Commanders' Capability Package funded within the NATO Security Investment Program (NSIP).

U.S. participation in NATO AGS was ratified by Secretary of Defense (SECDEF) signature/approval of the NATO AGS Program Memorandum of Understanding (PMOU) in June 2009 and includes 15 nations. In FY 2012, OSD transferred the NATO AGS program to the U.S. Air Force (USAF) for management and execution of the Research and Development effort.

This program is in Budget Activity 7, Operational System Development, because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force / BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0305238F / NATO AGS
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B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	232.851	197.486	39.292	0.000	39.292
Current President's Budget	232.851	138.400	38.904	0.000	38.904
Total Adjustments	0.000	-59.086	-0.388	0.000	-0.388
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	-59.086			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	-0.388	0.000	-0.388

Change Summary Explanation

FY 2016 President's Budget included funds intended for FY 2016 PE 0A01012F, NATO AWACS in the amount of \$59.086M. Air Force requested transfer to AP, AF line 79 for NATO AWACS.

FY17 reduction of \$0.388M based on inflation adjustment.

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
<p>Title: Design / Development of NATO Alliance Ground Surveillance (AGS)</p> <p>Description: U.S. contribution to NATO for AGS development acquisition and initial fielding.</p> <p>Supports configuration changes at a system level.</p> <p>FY 2015 Accomplishments:</p> <ul style="list-style-type: none"> - Continued U.S. contribution to NATO for AGS development acquisition and initial fielding - Supported configuration changes at a system level - Aircraft #1 rolled out for flight test <p>FY 2016 Plans:</p> <ul style="list-style-type: none"> - Will continue U.S. contribution to NATO for AGS development acquisition and initial fielding - Will support configuration changes at a system level - Aircraft #1 and #2 will be delivered to NATO <p>FY 2017 Plans:</p>	217.882	118.440	34.139

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force		Date: February 2016		
Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>		R-1 Program Element (Number/Name) PE 0305238F / NATO AGS		
C. Accomplishments/Planned Programs (\$ in Millions)		FY 2015	FY 2016	FY 2017
<ul style="list-style-type: none"> - Will complete U.S. contribution to NATO for AGS development acquisition and initial fielding - Will complete configuration changes at a system level - Aircraft #3, #4 and #5 will be delivered to NATO 				
<p>Title: Design/Development of Maritime Modes</p> <p>Description: Supports development and flight testing of maritime modes capability for RTIP and additional configuration changes that cannot be performed under the direct commercial sale contract between Northrop Grumman and NAGSMA.</p> <p>FY 2015 Accomplishments:</p> <ul style="list-style-type: none"> - Completed maritime mode flight testing - Continued to support development of maritime modes capability and additional configuration changes that cannot be performed under the direct commercial sale contract between Northrop Grumman and NAGSMA <p>FY 2016 Plans:</p> <ul style="list-style-type: none"> - Will continue to support development of maritime modes capability and additional configuration changes that cannot be performed under the direct commercial sale contract between Northrop Grumman and NAGSMA <p>FY 2017 Plans:</p> <ul style="list-style-type: none"> - Will complete development of maritime modes capability and additional configuration changes that cannot be performed under the direct commercial sale contract between Northrop Grumman and NAGSMA 		9.444	18.400	3.889
<p>Title: Technical Support for NATO Alliance Ground Surveillance (AGS)</p> <p>Description: Provide engineering and logistics support for NATO AGS development and initial fielding.</p> <p>FY 2015 Accomplishments:</p> <ul style="list-style-type: none"> - Continued engineering, logistics and program office support for NATO AGS development and initial fielding <p>FY 2016 Plans:</p> <ul style="list-style-type: none"> - Will continue engineering, logistics and program office support for NATO AGS development and initial fielding <p>FY 2017 Plans:</p> <ul style="list-style-type: none"> - Will continue engineering, logistics and program office support for NATO AGS development and initial fielding. 		1.345	1.385	0.570
<p>Title: Test and Evaluation Support for NATO Alliance Ground Surveillance (AGS)</p> <p>Description: Provide testing and evaluation via the Air Force Flight Test Center.</p> <p>FY 2015 Accomplishments:</p>		4.180	0.175	0.306

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0305238F / NATO AGS
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
- Continued detailed test and evaluation planning with the Air Force Flight Test Center FY 2016 Plans: - Accomplished first flight of aircraft #1 from production facility to Air Force Flight Test Center and initial flight test - Will continue detailed test and evaluation planning with the Air Force Flight Test Center - Aircraft #1 will conduct ferry flight from Air Force Flight Test Center to AGS Main Operating Base on Sigonella, Italy. - System level performance verification and integration with ground systems testing will be conducted on aircraft #1 following its arrival FY 2017 Plans: - Will complete detailed test and evaluation planning with the Air Force Flight Test Center			
Accomplishments/Planned Programs Subtotals	232.851	138.400	38.904

D. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u> <u>Base</u>	<u>FY 2017</u> <u>OCO</u>	<u>FY 2017</u> <u>Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• RDTE: BA 07: PE 0305220F: RQ-4 UAV	241.828	188.053	256.307	0.000	256.307	321.807	260.038	300.498	235.024	Continuing	Continuing

Remarks

E. Acquisition Strategy

Acquisition of the AGS system is being accomplished via a single delivery strategy. The system will be delivered via a fixed price direct commercial sale contract between Northrop Grumman Integrated Sensor Systems International, Incorporated (NGISSI) & NATO, which was signed on 20 May 2012. The program is managed by the NATO AGS Management Agency (NAGSMA).

F. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305238F / NATO AGS	Project (Number/Name) 676001 / NATO AGS
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
NATO AGS Design / Development	SS/FFP	NATO AGS Management Agency : Brussels, Belgium	-	200.432	Oct 2014	118.440	Oct 2015	34.139	Oct 2016	0.000		34.139	0.000	353.011	-
NATO AGS System Level Configuration Changes	SS/FFP	AFLCMC/WI : Wright Patterson, AFB, OH	-	17.451	May 2015	0.000		0.000		0.000		0.000	0.000	17.451	-
MP-RTIP for NATO AGS Design / Development	SS/FFP	AFLCMC/HB : Hanscom AFB, MA	-	9.444	May 2015	18.400	Oct 2015	3.889	Oct 2016	0.000		3.889	0.000	31.733	-
Subtotal			-	227.327		136.840		38.028		0.000		38.028	0.000	402.195	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
NATO AGS Technical Support	SS/FFP	Multiple : Hanscom, WPAFB	-	0.542	Apr 2015	0.748	Apr 2016	0.295	Apr 2017	0.000		0.295	0.000	1.585	-
Subtotal			-	0.542		0.748		0.295		0.000		0.295	0.000	1.585	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
NATO AGS Test and Evaluation Support	SS/FFP	Multiple: AFLCMC/WI, AFLCMC/HB, 412 TW, 88 CG : Hanscom, WPAFB, Edwards	-	4.180	Apr 2015	0.175	Apr 2016	0.306	Apr 2017	0.000		0.306	0.000	4.661	-
Subtotal			-	4.180		0.175		0.306		0.000		0.306	0.000	4.661	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305238F / NATO AGS	Project (Number/Name) 676001 / NATO AGS
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Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
NATO AGS Management Services	SS/FFP	Multiple : Hanscom, WPAFB, Pax River	-	0.802	Jul 2015	0.637	Jul 2016	0.275	Jul 2017	0.000		0.275	0.000	1.714	-
Subtotal			-	0.802		0.637		0.275		0.000		0.275	0.000	1.714	-
Project Cost Totals			-	232.851		138.400		38.904		0.000		38.904	0.000	410.155	-

Remarks
 The Industrial Structure consists of Northrop Grumman (NGISSII) prime contractor, three subcontractors, and 15 participating nation industries that will receive direct work. There are no indirect offsets. The technical support of the NATO AGS program includes MITRE Engineering, U.S. Navy's Triton program office support, U.S. government travel, and supplies. The test and evaluation support of the NATO AGS program includes the AFMC 412 Test Wing support of Flight Testing and Frequency Management by the AFMC 88 Communication Group. The management services support of the NATO AGS program includes Advisory & Assistance Services.

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305238F / NATO AGS	Project (Number/Name) 676001 / NATO AGS
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Design and Development - NATO AGS	1	2015	1	2017
Aircraft #1 Rollout (June 2015)	3	2015	3	2015
Aircraft #1 Ferry Flight to Main Ops Base (June 2016)	3	2016	3	2016
Aircraft #2 Delivery to Main Ops Base (September 2016)	4	2016	4	2016
Aircraft #3, #4 & #5 Delivery to Main Ops Base	1	2017	1	2017
System Level Performance Verification	4	2016	4	2016
IOC (December 2017)	1	2018	1	2018
FOC (December 2018)	1	2019	1	2019
Flight Test - NATO AGS	3	2015	3	2016
Design and Development - Maritime Mode	1	2015	4	2017
Flight Test of Maritime Mode (June 2015)	3	2015	3	2015
Ground Station Delivery	3	2016	3	2017
Tech Support - NATO AGS	1	2015	4	2017

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0305240F / <i>Support to DCGS Enterprise</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	-	17.115	28.336	23.084	0.000	23.084	26.273	26.768	27.266	27.749	Continuing	Continuing
674826: <i>Common Imagery Ground / Surface Systems</i>	-	8.460	16.099	13.431	0.000	13.431	14.926	15.208	15.491	15.765	Continuing	Continuing
675265: <i>Common Imagery Processor (CIP)</i>	-	8.655	12.237	9.653	0.000	9.653	11.347	11.560	11.775	11.984	Continuing	Continuing

A. Mission Description and Budget Item Justification

This Program Element contains Distributed Common Ground/Surface System (DCGS) Family of Systems interoperability efforts for which the AF is lead service. The DCGS Family of Systems, including AF DCGS, was directed to migrate to a net-centric DoD Intelligence, Surveillance and Reconnaissance (ISR) enterprise enabling the Services to operate and share intelligence products more effectively in a joint environment. All Services must pursue a common path based on a set of common enterprise services consistent with the Department's net-centric vision while maintaining flexibility to support the full range of warfighter missions. Specifically, DoD charged the Air Force to lead the development, upgrade, integration, and test of common DCGS Integration Backbone (DIB) enterprise services. The DIB is a set of enterprise standards and services that enable interoperability and component reuse. All the military services are mandated to incorporate DIB interoperability standards and commit to DIB architecture as the migration path to common DCGS enterprise services.

The Distributed Common Ground Systems-Imagery (DCGS-I) Testbed is an integration and test environment, used by the Services and Agency DCGS program offices to conduct integration of DCGS components and 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. Periodic upgrades ensure the Testbed stays current with DCGS standards and architecture.

Support to OUSD(I), AF DCGS, and NATO interoperability efforts is also provided through this program element. This includes development, testing, and implementation of international standards (to include NATO standardization agreements) to ensure joint, allied, and coalition interoperability.

The Common Imagery Processor effort develops a common imagery sensor processing capability within the DCGS architecture. The imagery processor accepts airborne imagery data, processes it into an exploitable format, and provides it to other elements within the weapon system and the DCGS Enterprise. Current efforts are transitioning the legacy imagery processor from a hardware/software capability to a virtual software capability, thereby improving enterprise processing capabilities. Efforts continue to keep the capability on track to handle the current sensors. Activities also include testing, development, and demonstrations integrating updated and new/emerging sensors into DCGS.

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

The FY 2017 funding request was reduced by \$4.86 million to account for the availability of prior year execution balances.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0305240F / <i>Support to DCGS Enterprise</i>
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This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	17.118	28.434	27.944	0.000	27.944
Current President's Budget	17.115	28.336	23.084	0.000	23.084
Total Adjustments	-0.003	-0.098	-4.860	0.000	-4.860
• Congressional General Reductions	0.000	-0.098			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	-0.003	0.000	-4.860	0.000	-4.860

Change Summary Explanation

The FY 2017 funding request was reduced by \$4.86 million to account for the availability of prior year execution balances.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force										Date: February 2016		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0305240F / Support to DCGS Enterprise				Project (Number/Name) 674826 / Common Imagery Ground / Surface Systems			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
674826: <i>Common Imagery Ground / Surface Systems</i>	-	8.460	16.099	13.431	0.000	13.431	14.926	15.208	15.491	15.765	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

DoD charged the AF with developing, upgrading and managing the Distributed Common Ground/Surface System (DCGS) Integration Backbone (DIB) for all the Services to provide common DCGS enterprise services and interoperability at the data level. The DIB is a set of enterprise standards and services that enable interoperability and component reuse. Using the DIB, the Air Force Distributed Common Ground System (AF DCGS) upgrade will transform AF DCGS from its existing proprietary system to a net-centric service oriented architecture.

The DCGS Family of Systems, including AF DCGS, was directed to migrate to a net-centric DoD Intelligence, Surveillance, and Reconnaissance (ISR) enterprise enabling the Services to operate and share intelligence products more effectively in a joint environment. All Services must pursue a common path based on common enterprise services consistent with the Department's net-centric vision, while maintaining flexibility to support the full range of warfighter missions. Also, all Services are mandated to incorporate DIB interoperability standards and commit to DIB architecture as the migration path to common DCGS enterprise services.

The Distributed Common Ground Systems-Imagery (DCGS-I) Testbed is an integration and test environment, used by the Services and Agency DCGS program offices to conduct integration of DCGS components and 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. Periodic upgrades ensure the Testbed stays current with DCGS standards and architecture.

The AF-sponsored DIB System Program Office also participates in the development, testing, and implementation of international standards (to include NATO standardization agreements) to ensure joint, allied, and coalition interoperability.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Distributed Common Ground / Surface System (DCGS) Integration Backbone	4.389	11.972	9.246	-	9.246
Description: Upgrade, improve and manage the DCGS Integration Backbone (DIB).					
FY 2015 Accomplishments: - Delivered DIB version 4.2, which included improvements to secured federation, identity management support, and search capability.					
FY 2016 Plans:					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305240F / Support to DCGS Enterprise	Project (Number/Name) 674826 / Common Imagery Ground / Surface Systems

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
- Deliver DIB version 4.3. Continue to upgrade, improve, and manage the DIB with a focus on the Distributed Data Framework (DDF) based interoperability and federation tools. FY 2017 Base Plans: - Will continue to upgrade, improve and manage the DIB with the next major version release.					
Title: Distributed Common Ground / Surface System-Imagery (DCGS-I) Testbed Description: Continue DCGS-I Testbed development and upgrades. Continue to use the Testbed to conduct DIB and DCGS enterprise tests. FY 2015 Accomplishments: - Continued DCGS-I Testbed development and upgrades and used the Testbed to conduct DIB and DCGS enterprise tests FY 2016 Plans: - Upgrade the Testbed to support remote federation and testing in order to more directly support DIB development. Continue to support DoD DCGS Enterprise and AF exercise activities. FY 2017 Base Plans: - Will upgrade downlink antenna to be consistent with operational systems and improve capability to support DoD DCGS enterprise tests and exercise events.	1.871	1.927	1.985	-	1.985
Title: Support to Distributed Common Ground / Surface System (DCGS) Enterprise Description: Provide support to OUSD(I), AF DCGS and NATO Interoperability Enterprise efforts. FY 2015 Accomplishments: - Continued to support to OUSD(I), AF DCGS and NATO Interoperability Enterprise efforts FY 2016 Plans: - Continue to support to OUSD(I), AF DCGS and NATO Interoperability Enterprise efforts FY 2017 Base Plans: - Will continue to support to OUSD(I), AF DCGS and NATO Interoperability Enterprise efforts	2.200	2.200	2.200	-	2.200
Accomplishments/Planned Programs Subtotals	8.460	16.099	13.431	-	13.431

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305240F / <i>Support to DCGS Enterprise</i>	Project (Number/Name) 674826 / <i>Common Imagery Ground / Surface Systems</i>
C. Other Program Funding Summary (\$ in Millions) N/A		
Remarks		
D. Acquisition Strategy The Air Force uses an evolutionary acquisition approach with version releases and periodic upgrades to develop, field, and upgrade the system and structure contracts for the improved capabilities through full and open competition to the maximum extent possible.		
E. Performance Metrics Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305240F / Support to DCGS Enterprise	Project (Number/Name) 674826 / Common Imagery Ground / Surface Systems
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
DIB Modernization, Integration, DT and Interoperability	C/T&M	Various : Various	-	3.535	Mar 2015	11.219	Jan 2016	8.173	Jan 2017	0.000		8.173	Continuing	Continuing	24.900
Testbed Modernization and Licenses	C/CPFF	Various : Various	-	1.871	May 2015	1.927	Jun 2016	1.985	Jun 2017	0.000		1.985	Continuing	Continuing	1.985
Subtotal			-	5.406		13.146		10.158		0.000		10.158	-	-	26.885

Remarks
 Testbed modernization and licenses is an IDIQ contract with annual award of CPFF delivery orders. Target value of contract represents expected award value for FY17.
 DIB modernization target value of contract represents the ceiling of the contract.

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
System Engineering	C/CPFF	MITRE : Bedford, MA	-	0.159	Oct 2014	0.000		0.000		0.000		0.000	0.000	0.159	-
DCGS Team Support for OUSD(I)	C/Various	Various : Various	-	2.200	Jul 2015	2.200	Jul 2016	2.200	Jul 2017	0.000		2.200	Continuing	Continuing	-
Subtotal			-	2.359		2.200		2.200		0.000		2.200	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			-	-		-		-		-		-	-	-	-

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305240F / Support to DCGS Enterprise	Project (Number/Name) 674826 / Common Imagery Ground / Surface Systems

	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Field DIB Version 4.2																												
Field DIB Version 4.3																												
Field DIB 2017																												
Field DIB 2018																												
Field DIB 2019																												
Field DIB 2020																												
Field DIB 2021																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305240F / Support to DCGS Enterprise	Project (Number/Name) 674826 / Common Imagery Ground / Surface Systems

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Field DIB Version 4.2	1	2015	4	2015
Field DIB Version 4.3	1	2016	4	2016
Field DIB 2017	1	2017	4	2017
Field DIB 2018	1	2018	4	2018
Field DIB 2019	1	2019	4	2019
Field DIB 2020	1	2020	4	2020
Field DIB 2021	1	2021	4	2021

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305240F / Support to DCGS Enterprise	Project (Number/Name) 675265 / Common Imagery Processor (CIP)
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
675265: Common Imagery Processor (CIP)	-	8.655	12.237	9.653	0.000	9.653	11.347	11.560	11.775	11.984	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Imagery Processing effort develops imagery sensor processing capability within the DCGS architecture. The imagery processor accepts airborne imagery data, processes it into an exploitable format, and provides it to other elements within the weapon system and/or the DCGS Enterprise. Current efforts are transitioning the legacy imagery processor from a hardware/software capability to a virtual software capability, thereby improving enterprise processing capabilities. Efforts continue to keep the capability on track to handle the current sensors. Activities also include testing, development, and demonstrations integrating updated and new/emerging sensors into DCGS.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Imagery Processor	8.655	12.237	9.653	0.000	9.653
Description: Continue developing the imagery processor capability to keep pace with growing sensor baseline.					
FY 2015 Accomplishments: Fielded Versions 3.34 and 3.36 which: - Continued Global Hawk Block 30 "stitching" improvements - Fielded detection visualization capability - Fielded a Senior Year Electro-Optical NIIRS estimator					
FY 2016 Plans: Field Versions 3.38 and 3.4, which will: - Continue to develop imagery processing capability to keep pace with growing sensor baseline - Complete centralizing imagery processing at ingest locations - Mature open processing framework to rapidly integrate new sensors and algorithms					
FY 2017 Base Plans: Will field versions 3.42 and 3.44 which: - Will continue to develop imagery processing capability to keep pace with growing sensor baseline - Will continue centralizing imagery processing at ingest locations					
FY 2017 OCO Plans:					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305240F / Support to DCGS Enterprise	Project (Number/Name) 675265 / Common Imagery Processor (CIP)
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
N/A					
Accomplishments/Planned Programs Subtotals	8.655	12.237	9.653	0.000	9.653

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• OPAF: BA07: Line Item # 846080: <i>Support to DCGS Enterprise</i>	0.000	3.526	3.561	0.000	3.561	3.614	3.700	3.783	3.522	Continuing	Continuing

Remarks

D. Acquisition Strategy

For imagery processing the Air Force uses an evolutionary acquisition approach with increments and spirals to develop, field, and upgrade the system and structure contracts for the improved capabilities through full and open competition to the maximum extent possible.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305240F / Support to DCGS Enterprise	Project (Number/Name) 675265 / Common Imagery Processor (CIP)
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Imagery Processing Software Development	C/CPAF	Various; Various : TBD	-	8.655	Mar 2015	12.237	Mar 2016	9.653	Mar 2017	0.000		9.653	Continuing	Continuing	-
Subtotal			-	8.655		12.237		9.653		0.000		9.653	-	-	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

			Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	8.655	12.237	9.653	0.000	9.653	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305240F / Support to DCGS Enterprise	Project (Number/Name) 675265 / Common Imagery Processor (CIP)
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	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Software Release (3.34)	■																											
Software Release (3.36)		■	■																									
Software Release (3.38)				■	■	■																						
Software Release (3.40)						■	■																					
Software Release (3.42)								■	■	■																		
Software Release (3.44)										■	■																	
Software Release (3.46)												■	■	■														

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305240F / Support to DCGS Enterprise	Project (Number/Name) 675265 / Common Imagery Processor (CIP)

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Software Release (3.34)	1	2015	1	2015
Software Release (3.36)	2	2015	3	2015
Software Release (3.38)	4	2015	1	2016
Software Release (3.40)	2	2016	3	2016
Software Release (3.42)	4	2016	1	2017
Software Release (3.44)	2	2017	3	2017
Software Release (3.46)	4	2017	1	2018

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0305258F / <i>Advanced Evaluation Program</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	-	0.000	0.000	116.143	0.000	116.143	152.226	95.181	240.735	544.461	Continuing	Continuing
675895: <i>SPECIAL PROGRAM</i>	-	0.000	0.000	116.143	0.000	116.143	152.226	95.181	240.735	544.461	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note
 This program, BA 07 PE 0305258F, project 675895, Special Programs, is a new start.

A. Mission Description and Budget Item Justification

This program is reported in accordance with Title 10, United States Code, Section 119(a)(1) in the Special Access Program Annual Report to Congress. For further information, please contact the Director of Special Programs, OUSD(AT&L)/DSP.

B. Program Change Summary (\$ in Millions)	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>
Previous President's Budget	0.000	0.000	0.000	0.000	0.000
Current President's Budget	0.000	0.000	116.143	0.000	116.143
Total Adjustments	0.000	0.000	116.143	0.000	116.143
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	116.143	0.000	116.143

C. Accomplishments/Planned Programs (\$ in Millions)	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u>
Title: Special Programs	-	-	116.143
Description: Special Programs			
FY 2017 Plans: Special Programs			
Accomplishments/Planned Programs Subtotals	-	-	116.143

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force Date: February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0305258F / <i>Advanced Evaluation Program</i>
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D. Other Program Funding Summary (\$ in Millions)
N/A

Remarks

E. Acquisition Strategy
N/A

F. Performance Metrics
Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305258F / <i>Advanced Evaluation Program</i>	Project (Number/Name) 675895 / <i>SPECIAL PROGRAM</i>
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Special Programs	Various	Not specified. : TBD	-	0.000		0.000		116.143		0.000		116.143	Continuing	Continuing	-
Subtotal			-	0.000		0.000		116.143		0.000		116.143	-	-	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

			Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	0.000	0.000	116.143	0.000	116.143	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305258F / <i>Advanced Evaluation Program</i>	Project (Number/Name) 675895 / <i>SPECIAL PROGRAM</i>

	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

Special Programs																												
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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305258F / <i>Advanced Evaluation Program</i>	Project (Number/Name) 675895 / <i>SPECIAL PROGRAM</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Special Programs	1	2017	4	2021

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0305265F / <i>GPS III Space Segment</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	2,172.921	204.864	180.359	141.888	0.000	141.888	110.860	43.561	78.866	80.265	464.191	3,477.775
676007: <i>SAR- GPS</i>	6.521	1.147	1.286	1.295	0.000	1.295	1.320	1.344	1.369	1.393	0.000	15.675
67A019: <i>GPS III</i>	2,166.400	203.717	179.073	140.593	0.000	140.593	109.540	42.217	77.497	78.872	464.191	3,462.100

Program MDAP/MAIS Code: 292

A. Mission Description and Budget Item Justification

The 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. GPS must comply with Title 10 United States Code (USC) Sec. 2281 which requires that the Secretary of Defense ensures that continued sustainment and operations of GPS for military and civilian purposes and 51 USC Sec. 50112 which requires that GPS complies with certain standards and facilitates international cooperation.

The system is composed of three segments: User Equipment (funded under PE 0305164F), Space (funded under this PE and PE 0305165F) and a Control Network (funded under PE 0305165F and PE 0603423F). 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 waypoints. 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 (C3I); Special Operations; Military Operations in Urban Terrain (MOUT); Defense-Wide Mission Support; Air Mobility; and Space Launch Orbital Support.

GPS III is the next generation Space Vehicle (SV) to join the GPS constellation. GPS III SVs will deliver significant enhancements, including a new civil (L1C) Galileo-compatible signal, and enhanced anti-jam power. Two auxiliary payloads, Search and Rescue/GPS (SAR/GPS) and Laser Retro-reflector Array (LRA) will be added no earlier than SV11. The SAR/GPS payload provided by Canada will fill a validated National Search and Rescue Committee requirement to provide enduring, space-based distress alerting capability to detect, locate, and relay distress alerts to fulfill its responsibilities under international agreements for Search and Rescue. SAR integration costs are split 50%/50% between the Coast Guard and the Air Force (costs presented in this document represent the USAF 50% share). LRA, built by the Naval Research Lab (NRL), is a passive reflector that will improve accuracy and provide better ephemeris data. National Geospatial-Intelligence Agency (NGA) funds the integration costs of the LRA.

This program funds GPS III and supports research, development, test and evaluation (RDT&E) of GPS III SV01-02 and risk-reducing simulators through a systems engineering approach that matures and delivers SVs for launch. This PE includes SV01-02 engineering studies and analyses, trade studies, system development, test

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0305265F / <i>GPS III Space Segment</i>	
<p>and evaluation efforts, integrated logistics support products, on-orbit support, and mission operations support for civil and military applications that protect U.S. military and Allied use of GPS.</p> <p>The program also includes Contingency Operations (COps) as risk mitigation to late Next Generation Operational Control System (OCX) delivery. The current acquisition schedule of OCX Block 1 (capability to operate GPS III satellites) puts GPS constellation sustainment at risk since the current control segment cannot operate GPS III satellites. GPS III COps is a modification to the current control segment to operate GPS III satellites' PNT and NUDET Detection System (NDS) until OCX Block 1 is delivered.</p> <p>On 3 July 2015, USD(AT&L) approved the first phase of a two-phased GPS III SV acquisition strategy starting no earlier than SV11. Phase 1 is a Production Readiness Feasibility Assessment which will provide data and insight into contractors' GPS III Production Design with emphasis on a mature navigation payload to include a regional M-Code capability that is consistent with the GPS Enterprise Analysis of Alternatives (AOA). Phase 1 utilizes FY15-17 RDTE funding for up to three contractors' GPS production designs. Phase 2 has not been approved and options continue to be explored. Notionally, Phase 2 will be a full and open competition for up to 22 GPS III SVs with an expected decision no earlier than SV11. Phase 2 is funded via Space Procurement Air Force (3021) in PE 0305265F, BPAC: 23GPS3.</p> <p>Space Modernization Initiative (SMI) focuses on space vehicle affordability and capability, addresses obsolescence, future requirements and resiliency needs, and expands the industrial base to enhance future competition. Phase 1 will address GPS Enterprise AoA recommendations to increase GPS signal strength from space by maturing navigation payload technologies that include a new regional M-Code capability. The Air Force is using its research laboratories to mature an On-Orbit Reprogrammable Digital Waveform Generator which will provide signal flexibility (to change the signal form while the satellite is on-orbit). This effort will be funded with Air Force Research Lab's Science & Technology (S&T) funding and PE 0305265F to increase the number of alternate navigation payload awards.</p> <p>In FY17, this Program Element supports Enterprise Ground Services (EGS). EGS is performing tech maturation, experiments and prototyping for increased commonality and resiliency in space program ground systems.</p> <p>This program is a Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full-rate production and anticipate production funding in the current or subsequent fiscal year.</p>		

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0305265F / <i>GPS III Space Segment</i>
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B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	211.907	180.902	154.630	0.000	154.630
Current President's Budget	204.864	180.359	141.888	0.000	141.888
Total Adjustments	-7.043	-0.543	-12.742	0.000	-12.742
• Congressional General Reductions	0.000	-0.543			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-7.043	0.000			
• Other Adjustments	0.000	0.000	-12.742	0.000	-12.742

Change Summary Explanation

FY17: -\$12.742M for higher Department priorities

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force										Date: February 2016		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0305265F / GPS III Space Segment				Project (Number/Name) 676007 / SAR- GPS			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
676007: SAR- GPS	6.521	1.147	1.286	1.295	0.000	1.295	1.320	1.344	1.369	1.393	0.000	15.675
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Search and Rescue GPS (SAR/GPS) is an approved auxiliary payload on GPS III beginning no earlier than SV11. SAR/GPS fills validated National Search and Rescue Committee requirements to provide enduring, space-based distress alerting capability to detect, locate, and relay distress alerts to fulfill its responsibilities under international agreements for Search and Rescue.

In addition, the USAF has on-going requirements to rescue US Military personnel in harm's way per Air Force Doctrine Document 2-1.6. The implementation of a US Medium Earth Orbiting (MEO) Search and Rescue Space Segment is via a Canadian-provided 406 MHz SAR repeater on GPS III SVs. This system presents a cost effective, low-risk opportunity that accommodates existing and planned 406 MHz beacons across the globe. Per National Security Presidential Directive (NSPD)-39, USAF and USCG, the US operators of the civil Cosmicheskaya Sistyema Poiska Avaryinich Sudov-Search and Rescue Satellite-Aided Tracking (COSPAS/SARSAT) system and the international search and rescue system, share costs (50/50) associated with integrating the Canadian-provided SAR repeater to GPS III beginning no earlier than SV11. Costs presented in this document represent the USAF 50% Share.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2015	FY 2016	FY 2017
Title: SAR/GPS	1.147	1.286	1.295
Description: Nonrecurring costs for systems engineering activities to integrate the payload onto the GPS III SVs starting no earlier than SV11.			
FY 2015 Accomplishments: Continued to design and develop SAR/GPS antennas, associated hardware and cabling, and space vehicle software; systems engineering associated with integrating SAR payload onto the GPS III SVs; enterprise-level Systems Engineering Integration Test/Program Management (SEIT/PM). Costs do not include development and production of Canadian payload unit.			
FY 2016 Plans: Continue to design and develop SAR/GPS antennas, associated hardware and cabling, and space vehicle software; systems engineering associated with integrating SAR payload onto the GPS III SVs; enterprise-level System Engineering, Integration, Test and Program Management (SEIT/PM). Costs do not include development and production of Canadian payload unit.			
FY 2017 Plans:			

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305265F / GPS III Space Segment	Project (Number/Name) 676007 / SAR- GPS

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
Continue to complete the design and development of SAR/GPS antennas, associated hardware and cabling, and space vehicle software; systems engineering associated with integrating SAR payload onto the GPS III SVs; enterprise-level SEIT/PM. Costs do not include development and production of Canadian payload unit.			
Accomplishments/Planned Programs Subtotals	1.147	1.286	1.295

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• MPAF: BA05: Line Item # GPSIII: <i>GPS III</i>	312.326	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	282.326
• SPAF: BA01: Line Item # GPSIII: <i>GPS III</i>	0.000	199.218	34.059	0.000	34.059	761.515	899.241	761.565	554.763	3,738.790	6,949.151
• USCG: <i>U.S. Coast Guard</i>	2.915	2.915	2.915	0.000	2.915	2.915	2.915	2.915	2.915	2.915	23.320
• NGA: <i>National Geospatial- Intelligence Agency</i>	0.419	2.000	2.000	0.000	2.000	1.000	1.000	0.400	0.000	0.000	6.819

Remarks

D. Acquisition Strategy

SAR/GPS and Laser Retroreflector Array (LRA) will be integrated as part of the GPS III program no earlier than SV11.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305265F / GPS III Space Segment	Project (Number/Name) 676007 / SAR- GPS
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Search and Rescue SAR/ GPS	C/CPIF	Lockheed Martin : Littleton, CO	6.521	1.147	Mar 2016	1.286	Jul 2016	1.295	Dec 2016	0.000		1.295	5.426	15.675	16.030
Subtotal			6.521	1.147		1.286		1.295		0.000		1.295	5.426	15.675	16.030

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

			Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			6.521	1.147	1.286	1.295	0.000	1.295	5.426	15.675	16.030

Remarks
Search and Rescue/SAR

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305265F / GPS III Space Segment	Project (Number/Name) 676007 / SAR- GPS
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	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

Planned SAR/GPS RFP Release	█																											
Planned SAR/GPS Contract Award	█																											
Planned SAR/GPS Payload Critical Design Review (CDR)	█																											
Planned SAR/GPS Engineering Design Unit (EDU)	█																											
Planned SAR/GPS Flight 1 (First Article) Payload	█																											

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305265F / GPS III Space Segment	Project (Number/Name) 676007 / SAR- GPS
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Planned SAR/GPS RFP Release	4	2016	4	2016
Planned SAR/GPS Contract Award	2	2017	2	2017
Planned SAR/GPS Payload Critical Design Review (CDR)	4	2018	4	2018
Planned SAR/GPS Engineering Design Unit (EDU)	2	2020	2	2020
Planned SAR/GPS Flight 1 (First Article) Payload	2	2021	2	2021

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force										Date: February 2016		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0305265F / GPS III Space Segment				Project (Number/Name) 67A019 / GPS III			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
67A019: GPS III	2,166.400	203.717	179.073	140.593	0.000	140.593	109.540	42.217	77.497	78.872	464.191	3,462.100
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

GPS III is the next generation Space Vehicle (SV) supporting the GPS constellation and is funded in PE 35265F. GPS III SVs will deliver significant enhancements, including a new civil (L1C) Galileo-compatible signal, enhanced anti-jam power, and a growth path to full warfighter capabilities. GPS III SV03-10 is in the Production & Deployment Phase.

RDT&E, AF PE 0305265F funds GPS III and supports research, development, test and evaluation of GPS III SV01-02 and risk-reducing simulators through a systems engineering approach that matures and delivers SVs for launch. This PE includes SV01-02 engineering studies and analyses, trade studies, system development, test and evaluation efforts, integrated logistics support products, on-orbit support, and mission operations support for civil and military applications that protect U.S. military and allied use of GPS. The program also includes contingency operations as risk mitigation to late Next Generation Operational Control System (OCX) delivery which will allow for command and control of GPS III SVs.

Space Modernization Initiative (SMI) focuses on space vehicle affordability and capability, addresses future requirements and resiliency needs, and expands the industrial base to enhance future competition. Phase 1 will address GPS Enterprise Analysis of Alternative (AoA) recommendations to increase GPS signal strength from space by maturing navigation payload technologies that include a new regional M-Code capability. The Air Force is using its research laboratories to mature an On-Orbit Reprogrammable Digital Waveform Generator (ORDWG) which will provide signal flexibility (to change the signal form while the satellite is on-orbit). This effort will be funded with Air Force Research Lab's Science & Technology (S&T) funding and PE 0305265F to increase the number of alternate navigation payload awards.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2015	FY 2016	FY 2017
Title: GPS III SV01-2	171.331	137.310	88.153
Description: Development, test and evaluation of two GPS III space vehicles and associated simulators, engineering studies and analyses, trade studies, system development, test and evaluation efforts, and integrated logistics support products.			
FY 2015 Accomplishments: Continued GPS III space vehicle development, SE&I, technical and program support. Delivered SV01 Navigation Payload and final bus assemblies. Completed SV01 system module core mate. Completed flight software qualification for the MDU. Started SV01 Thermal Vacuum (TVAC) testing.			
FY 2016 Plans:			

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016		
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305265F / GPS III Space Segment	Project (Number/Name) 67A019 / GPS III		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2015	FY 2016	FY 2017
<p>Continue GPS III space vehicle development, SE&I, technical and program support. Complete SV01 TVAC testing and complete all qualification testing. Complete SV01 Available For Launch (AFL) activities. Deliver SV02 Navigation Payload. Complete SV02 Thermal Vacuum (TVAC) testing.</p> <p>FY 2017 Plans: Continue GPS III space vehicle development, SE&I, technical and program support. Complete SV02 acceptance testing. Complete SV02 Available For Launch (AFL) activities.</p>				
<p>Title: Production Readiness</p> <p>Description: USD(AT&L) approved the first phase of a two-phased GPS III SV acquisition strategy starting no earlier than SV11. The strategy utilizes FY15-17 RDTE funding for the Phase 1 effort to mature up to three contractors' GPS III production designs. The Phase 1 Production Readiness Feasibility Assessment will provide data and insight into contractors GPS III Production Design with emphasis on a mature navigation payload that includes a regional M-Code capability that is consistent with the GPS Enterprise analysis of alternatives. Phase 1 requires contractors to provide a GPS III space vehicle and navigation payload production designs, manufacturing plans, and a navigation payload engineering brass board (hardware).</p> <p>FY 2015 Accomplishments: Prepared Phase 1 RFP to mature GPS III SV11+ production designs with release and award in FY16. Phase 1 requires contractors to provide a GPS III space vehicle and navigation payload production designs, manufacturing plans, and a navigation payload engineering brass board (hardware).</p> <p>FY 2016 Plans: Release Phase 1 RFP in 2QFY16 and award up to three contracts during 3QFY16. Deliver Phase 1 initial navigation payload and space vehicle production design and manufacturing plans (PDR-level). Award ORDWG maturation contracts via AFRL to support SMI activities.</p> <p>FY 2017 Plans: Deliver Phase 1 navigation payload production design (CDR-level) and engineering brass board (hardware) results. Exercise Phase 1 contract options, to continue navigation payload maturity. Continue ORDWG maturation via AFRL to support SMI activities.</p>		20.000	3.400	4.800
<p>Title: Contingency Operations (COps)</p> <p>Description: COps is a risk reduction activity to maintain constellation sustainment as prescribed by the GPS III Space Vehicle Acquisition Strategy in the (now realized) event that the Next Generation OCS was unable to support the initial support of GPS III SVs. COps adds to the existing Operational Control System (OCS) Architecture Evolution Plan (AEP) command, control, maneuver planning, re-programmability, navigation functionality, NDS support, and external interfaces for the GPS III Space</p>		0.000	29.200	32.700

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016		
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305265F / GPS III Space Segment	Project (Number/Name) 67A019 / GPS III		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2015	FY 2016	FY 2017
<p>Vehicle (SV). COps also includes the addition of GPS III SV simulation modules to the GPS System Simulator (GSS) and updates to the Positional Training Emulator (PTE).</p> <p>FY 2015 Accomplishments: Completed the second of three major requirements reviews under the COps Special Study #2 task (CLIN 2009) to speed the preliminary software design modifications to AEP. Released Request For Proposal (RFP) to implement the COps program.</p> <p>FY 2016 Plans: Negotiate and award COps contract vehicle (2QFY16). Complete COps Preliminary Design Review (PDR), and begin activities for Critical Design Review (CDR). Begin Code and Unit Testing; initiate and complete development laboratory set-up including requisite NSA certifications; begin integration test planning; begin GSS development and integration planning; start and complete GSS drawings.</p> <p>FY 2017 Plans: Complete Critical Design Review; continue and complete code and unit testing; complete integration test planning, complete TT&C integration test, and begin NAV integration test; complete GSS hardware purchase and installation, integration planning and testing, and Factory Qualification Test (FQT) planning; begin GSS FQT; begin PTE development--purchase and install hardware, and begin code and unit test; prepare and begin AEP FQT.</p>				
<p>Title: Systems Engineering/Launch/On-Orbit Support & Testing</p> <p>Description: Support costs include such activities as development of Launch & Checkout System (LCS) to ensure space and ground communications, on-orbit checkout, storage, testing, and system engineering.</p> <p>FY 2015 Accomplishments: Continued systems engineering and integration support to the development of SV01-02, and Evolved Expendable Launch Vehicle (EELV) early integration and mission unique items to support launch processing. Continued processing and technical support for the launch processing facility at CCAFS.</p> <p>FY 2016 Plans: Continue systems engineering and integration support to the development of SV01-02, and EELV early integration and mission unique items to support launch processing. Continue technical support for the launch processing facility at CCAFS.</p> <p>FY 2017 Plans: Continue systems engineering and integration support to the development of SV01-02, and EELV early integration and mission unique items to support launch processing. Continue technical support for the launch processing facility at CCAFS.</p>		12.386	9.163	7.440
<p>Title: Enterprise Ground Services (EGS)</p>		0.000	0.000	7.500

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305265F / GPS III Space Segment	Project (Number/Name) 67A019 / GPS III

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
<p>Description: Enterprise Ground Services (EGS) will provide a robust enterprise ground architecture for Air Force space systems, which leverages mission commonality and automation to reduce sustainment costs and re-focus manpower on warfighting capabilities. In addition, EGS will enable a near-real-time common operating picture of enterprise-wide tactical health, status, indications, and warnings for Air Force satellites. The end-state will be a modern technical infrastructure which is cyber-secure and resilient against the Advanced Persistent Threat and employs streamlined architecting, acquisition, and operational processes. Through early architecture studies and prototyping, the government will establish clear ownership of the technical baseline to meet Better Buying Power principles as the EGS effort evolves through development. This effort provides focus and expertise for the development, test, certification and enforcement of standards and interfaces for all AFSPC satellite ground systems to enable transition planning for legacy ground systems, new capability demonstrations, and systems acquisition leading to an enterprise ground architecture for Air Force space systems.</p> <p>FY 2015 Accomplishments: N/A</p> <p>FY 2016 Plans: N/A</p> <p>FY 2017 Plans: Conduct developmental planning, mature technologies, and develop initial small-scale prototype capability for the enterprise ground architecture. Efforts in 2017 will include, but are not limited to, systems engineering, special studies, cybersecurity planning and implementation, standards and interface development and codification, integration and test efforts in support of demonstrations, and operational architecture planning. In addition, this effort will build the technical and programmatic roadmap to enable a phased enterprise transition in the future.</p>			
Accomplishments/Planned Programs Subtotals	203.717	179.073	140.593

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• MPAF: BA05: Line Item # GPSIII: <i>GPS III</i>	312.326	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	312.326
• SPAF: BA01: Line Item # GPS III: <i>GPS III</i>	0.000	286.218	34.059	0.000	34.059	761.515	899.241	761.565	554.763	4,011.491	7,308.852

Remarks

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force Date: February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305265F / GPS III Space Segment	Project (Number/Name) 67A019 / GPS III
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D. Acquisition Strategy

The GPS III next generation space segment rapidly and affordably responds to warfighter capability requirements. The 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 GPS III SVs will have GPS IIF capabilities plus up to a 3x-8x increase in anti-jam signal power, 3x improved accuracy, 3+ year increased design life, a new civil (L1C) signal compatible with the European Galileo system and a satellite bus capable of supporting future SV capability additions.

On 3 Jul 2015 USD(AT&L) approved the first phase of a two-phased GPS III SV acquisition strategy starting no earlier than SV11. The strategy utilizes FY15-17 RDTE funding for the Phase 1 effort to mature up to three contractors' GPS III production designs. The Phase 1 Production Readiness Feasibility Assessment will provide data and insight into contractors GPS III Production Design with emphasis on a mature navigation payload that includes a regional M-Code capability that is consistent with the GPS Enterprise analysis of alternatives. Phase 1 requires contractors to provide a GPS III space vehicle and navigation payload production designs, manufacturing plans, and a navigation payload engineering brass board (hardware). The Air Force is using its research laboratories to mature an On-Orbit Reprogrammable Digital Waveform Generator which will provide signal flexibility (to change the signal form while the satellite is on-orbit). This effort will be funded with Air Force Research Lab's Science & Technology (S&T) funding and PE 0305265F to increase the number of alternate navigation payload awards.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305265F / GPS III Space Segment	Project (Number/Name) 67A019 / GPS III
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
GPS III Development	C/CPHF	Lockheed Martin : Denver, CO	1,783.847	146.041	Dec 2014	116.242	Dec 2015	67.509	Dec 2016	0.000		67.509	51.541	2,165.180	2,168.242
GPS III Technical Mission Analysis	MIPR	Various : Various	0.000	1.884	Oct 2015	7.600	Oct 2016	7.523	Oct 2017	0.000		7.523	27.173	44.180	44.180
GPS III Enterprise SE&I	C/CPAF	TASC : El Segundo, CA	51.001	3.818	Nov 2014	3.793	Nov 2015	2.015	Nov 2016	0.000		2.015	11.202	71.829	71.839
GPS III Launch Support	RO	45th : Cape Canaveral, FL	2.325	1.560	Mar 2015	2.370	Mar 2016	0.000		0.000		0.000	0.930	7.185	5.013
GPS III Production Readiness/SMI	C/CPAF	TBD : TBD	0.000	20.000	Feb 2016	3.400	Feb 2016	4.800	Feb 2017	0.000		4.800	579.178	607.378	606.478
GPS III Contingency Ops	C/CPAF	TBD : TBD	0.000	0.000		29.200	Feb 2016	32.700	Dec 2016	0.000		32.700	24.400	86.300	86.300
GPS III Enterprise Ground Service	C/CPAF	TBD : TBD	0.000	0.000		0.000		7.500	Jan 2017	0.000		7.500	0.000	7.500	7.500
GPS III Phase A Development	Various	Various : Various	157.305	0.000		0.000		0.000		0.000		0.000	0.000	157.305	-
Subtotal			1,994.478	173.303		162.605		122.047		0.000		122.047	694.424	3,146.857	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
GPS III T&E	Various	Various : TBD	21.657	7.008	May 2015	3.000	May 2016	5.425	May 2017	0.000		5.425	22.785	59.875	59.875
Subtotal			21.657	7.008		3.000		5.425		0.000		5.425	22.785	59.875	59.875

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force											Date: February 2016					
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0305265F / GPS III Space Segment				Project (Number/Name) 67A019 / GPS III						
Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
GPS III FFRDC	MIPR	Aerospace : El Segundo, CA	54.592	14.613	Dec 2014	3.637	Dec 2015	4.349	Dec 2016	0.000		4.349	18.266	95.457	95.457	
GPS III A&AS	Various	Various : Various	95.673	6.731	Apr 2015	7.058	Apr 2016	6.372	Apr 2017	0.000		6.372	26.762	142.596	142.596	
GPS III Other Support	Various	Various : Various	0.000	2.062	Oct 2014	2.773	Oct 2015	2.400	Oct 2016	0.000		2.400	10.080	17.315	17.315	
Subtotal			150.265	23.406		13.468		13.121		0.000		13.121	55.108	255.368	255.368	
Project Cost Totals			2,166.400	203.717		179.073		140.593		0.000		140.593	772.317	3,462.100	-	

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305265F / GPS III Space Segment	Project (Number/Name) 67A019 / GPS III
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	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
GPS III Space Vehicle (SV) 01 Navigation Payload (PL) Delivered		■																										
GPS III SV01 Complete Thermal Vacuum Testing							■	■																				
GPS III Production Readiness Decision (Phase 1)				■																								
GPS III Laser Retro-reflector Array (LRA) Critical Design Review (CDR)							■																					
GPS III SV11+ Global Burst Detector (GBD) PL Redesign Preliminary Design Review							■																					
GPS III Production Readiness Phase 1 Contract Award								■	■																			
GPS III SV01 Available for Launch										■																		
GPS III SV11+ Phase 2 Acquisition Decision												■																
GPS III SV11+ Phase 2 Request for Proposal Release													■															
GPS III SV02 Available for Launch														■														
GPS III SV11+ Phase 2 Contract Award															■													
SAR/GPS Payload Critical Design Review (CDR)																	■											
GPS III SV11+ Phase 2 Delta CDR (If required)																			■									

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305265F / GPS III Space Segment	Project (Number/Name) 67A019 / GPS III
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
GPS III Space Vehicle (SV) 01 Navigation Payload (PL) Delivered	2	2015	2	2015
GPS III SV01 Complete Thermal Vacuum Testing	1	2016	2	2016
GPS III Production Readiness Decision (Phase 1)	4	2015	4	2015
GPS III Laser Retro-reflector Array (LRA) Critical Design Review (CDR)	2	2016	2	2016
GPS III SV11+ Global Burst Detector (GBD) PL Redesign Preliminary Design Review	2	2016	2	2016
GPS III Production Readiness Phase 1 Contract Award	3	2016	3	2016
GPS III SV01 Available for Launch	4	2016	4	2016
GPS III SV11+ Phase 2 Acquisition Decision	2	2017	2	2017
GPS III SV11+ Phase 2 Request for Proposal Release	2	2017	2	2017
GPS III SV02 Available for Launch	4	2017	4	2017
GPS III SV11+ Phase 2 Contract Award	3	2018	3	2018
SAR/GPS Payload Critical Design Review (CDR)	4	2018	4	2018
GPS III SV11+ Phase 2 Delta CDR (If required)	2	2019	2	2019

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0305600F / <i>International Intelligence Technology and Architectures</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	-	2.270	2.298	2.360	0.000	2.360	2.491	2.646	2.697	2.745	Continuing	Continuing
675898: <i>INTERNATIONAL INTELLIGENCE TECHNOLOGY AND ARC</i>	-	2.270	2.298	2.360	0.000	2.360	2.491	2.646	2.697	2.745	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The IITA US BICES program was established by USD(I) to:

- Rapidly assess new and existing releasable intelligence sharing technologies being developed within the DoD and the intelligence community;
- Determine where those technologies can significantly advance intelligence sharing capabilities of US and Allied/Coalition forces and;
- Integrate these technologies into the current US BICES-x Enterprise and emerging US international intelligence architectures and systems consistent with the DI2E Framework and Mission Partner Environment supporting global operations.

Classified details can be found in OSD Comptroller's classified Defense-Wide Justification Book Volume 6.

This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	2.270	0.000	0.000	0.000	0.000
Current President's Budget	2.270	2.298	2.360	0.000	2.360
Total Adjustments	0.000	2.298	2.360	0.000	2.360
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	2.298			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	2.360	0.000	2.360

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0305600F / <i>International Intelligence Technology and Architectures</i>
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Congressional Add Details (\$ in Millions, and Includes General Reductions)

Project: 675898: *INTERNATIONAL INTELLIGENCE TECHNOLOGY AND ARC*
 Congressional Add: *International Intelligence Technology and Architectures (1)*

Congressional Add Subtotals for Project: 675898

Congressional Add Totals for all Projects

	FY 2015	FY 2016
	-	2.298
	-	2.298
	-	2.298

Change Summary Explanation

Increase in FY17 due to higher Air Force priorities.

C. Accomplishments/Planned Programs (\$ in Millions)

	FY 2015	FY 2016	FY 2017
Title: International Intelligence Technology and Architectures	2.270	0.000	2.360
Description: International Intelligence Technology and Architectures			
FY 2015 Accomplishments: Classified details can be found in OSD Comptroller's classified Defense-Wide Justification Book Volume 6.			
FY 2016 Plans: N/A			
FY 2017 Plans: Classified details can be found in OSD Comptroller's classified Defense-Wide Justification Book Volume 6.			
Accomplishments/Planned Programs Subtotals	2.270	0.000	2.360

	FY 2015	FY 2016
Congressional Add: International Intelligence Technology and Architectures (1)	-	2.298
FY 2016 Plans: Classified details can be found in OSD Comptroller's classified Defense-Wide Justification Book Volume 6.		
Congressional Adds Subtotals	-	2.298

D. Other Program Funding Summary (\$ in Millions)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• N/A: N/A	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	-

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0305600F / <i>International Intelligence Technology and Architectures</i>
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D. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u> <u>Base</u>	<u>FY 2017</u> <u>OCO</u>	<u>FY 2017</u> <u>Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
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Remarks

E. Acquisition Strategy

Classified details can be found in OSD Comptroller's classified Defense-Wide Justification Book Volume 6.

F. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305600F / <i>International Intelligence Technology and Architectures</i>	Project (Number/Name) 675898 / <i>INTERNATIONAL INTELLIGENCE TECHNOLOGY AND ARC</i>
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Classified details can be found in OSD Comptroller's classified Defense-Wide Justification Book Volume 6.	Various	N/A : N/A	-	2.270		2.298		2.360		0.000		2.360	Continuing	Continuing	-
Subtotal			-	2.270		2.298		2.360		0.000		2.360	-	-	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

			Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	2.270	2.298	2.360	0.000	2.360	-	-	-

Remarks
Classified details can be found in OSD Comptroller's classified Defense-Wide Justification Book Volume 6.

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305600F / <i>International Intelligence Technology and Architectures</i>	Project (Number/Name) 675898 / <i>INTERNATIONAL INTELLIGENCE TECHNOLOGY AND ARC</i>

FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

Classified details can be found in OSD Comptroller's classified Defense-Wide Justification Book Volume 6.

[Redacted Data]																											
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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305600F / <i>International Intelligence Technology and Architectures</i>	Project (Number/Name) 675898 / <i>INTERNATIONAL INTELLIGENCE TECHNOLOGY AND ARC</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Classified details can be found in OSD Comptroller's classified Defense-Wide Justification Book Volume 6.	1	2015	4	2021

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0305614F / JSPOC Mission System
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COST (\$ in Millions)	Prior Years ⁽⁺⁾	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	328.110	83.277	80.669	72.889	0.000	72.889	62.799	65.388	66.739	69.408	Continuing	Continuing
67A030: <i>Infrastructure</i>	160.354	39.894	30.018	27.526	0.000	27.526	0.000	0.000	0.000	0.000	0.000	257.792
67A031: <i>Mission Applications</i>	159.164	43.383	38.270	20.496	0.000	20.496	0.000	0.000	0.000	0.000	0.000	261.313
67A035: <i>INCREMENT 3</i>	0.000	0.000	12.381	24.867	0.000	24.867	62.799	65.388	66.739	69.408	Continuing	Continuing

Program MDAP/MAIS Code: N82

⁽⁺⁾ The sum of all Prior Years is \$8.592 million less than the represented total due to several projects ending

A. Mission Description and Budget Item Justification

The Joint Space Operations Center (JSpOC) Mission System (JMS) Program is a Space Command and Control (C2) capability for the Commander, Joint Functional Component Commander for Space (JFCC SPACE). The JMS program is predominately a software effort that will produce an integrated, net-centric Service Oriented Architecture (SOA) and the necessary software applications to accomplish required missions. The program will provide a collaborative environment that will enhance and modernize space situational awareness (SSA) capabilities; create decision-relevant views of the space environment; rapidly detect, track and characterize objects of interest; identify / exploit traditional and non-traditional sources; perform space threat analysis; and enable efficient distribution of data across the Space Surveillance Network (SSN). Furthermore, it provides a viable migration path from the legacy Space Defense Operations Center (SPADOC) system, which has 75% of its components beyond end of life or end of service, and the majority of its software no longer vendor-supported. JMS Increment 3 will expand upon the Increment 2 architecture and deliver Battle Management Command and Control (BMC2) capabilities for capacity and timeliness to manage major theater engagements of many on many threats; synchronize forces and enable automated courses of action (COA) and C2; expand information architecture to include intelligence community, non-traditional, commercial, and international sources. JMS is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0305614F / JSPOC Mission System
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B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	73.779	81.911	65.414	0.000	65.414
Current President's Budget	83.277	80.669	72.889	0.000	72.889
Total Adjustments	9.498	-1.242	7.475	0.000	7.475
• Congressional General Reductions	0.000	-0.242			
• Congressional Directed Reductions	0.000	-1.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	9.499	0.000			
• SBIR/STTR Transfer	-0.001	0.000			
• Other Adjustments	0.000	0.000	7.475	0.000	7.475

Change Summary Explanation

FY15: +\$9.499M Below Threshold Reprogramming for equipment and engineering support for development and testing Increment 2 service packs 9-13

FY16: -\$1M Congressional Mark "Excessive Growth"

FY17: +\$7.475 Funds Space Control BMC2

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force										Date: February 2016		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0305614F / JSPOC Mission System				Project (Number/Name) 67A030 / Infrastructure			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
67A030: <i>Infrastructure</i>	160.354	39.894	30.018	27.526	0.000	27.526	0.000	0.000	0.000	0.000	0.000	257.792
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Infrastructure provides a Service Oriented Architecture (SOA), net-centric collaborative information environment at the Unclassified, Secret, TS/SCI, and SAP levels. Efforts incorporate net-centric enterprise services and integrating incremental space 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.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2015	FY 2016	FY 2017
Title: Increment 2	39.894	30.018	27.526
Description: Pursues and integrates a collaborative net-centric, SOA information environment.			
FY 2015 Accomplishments: Continued development of accrediting SOA infrastructure to support operations of Service Pack (SP)-9; provided incremental upgrades to infrastructure (including net ready, security, reliability core services, messaging, and User Defined Operating Picture (UDOP)) as new applications/capabilities were delivered with each service pack. Provided systems engineering, integration, support and testing of enhanced infrastructure to support future SP-11.			
FY 2016 Plans: Completing testing of SP-9, development/integration of SP-11 and systems engineering of SP-13. Develop JMS Standard Space Trainer and develop capability to net-centrally expose legacy sensor data.			
FY 2017 Plans: Complete testing of SP-11 and development/integration of SP-13. Update Standard Space Trainer with SP-11 capabilities and develop capability to net-centrally expose intelligence data and non-traditional data sources.			
Accomplishments/Planned Programs Subtotals	39.894	30.018	27.526

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

Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• SPAF: BA01: Line Item # 836790: <i>Space Mods Space</i>	0.000	0.000	0.000	0.000	0.000	11.843	12.254	12.471	12.695	Continuing	Continuing

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305614F / JSPOC Mission System	Project (Number/Name) 67A030 / Infrastructure
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u> <u>Base</u>	<u>FY 2017</u> <u>OCO</u>	<u>FY 2017</u> <u>Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• OMAF: PE 0305614F: <i>JSPOC Mission System</i>	8.948	27.188	23.510	0.000	23.510	25.326	29.439	24.023	24.456	Continuing	Continuing

Remarks

Replaces JMS components and provides an operational, sustainable environment to maintain capabilities that fuse data from space intelligence, surveillance, reconnaissance, and environmental sources. This modification will procure commercial hardware, software licenses, and warranties to upgrade the operational environment enclaves (2 Secret / 2 SCI), as well as keep up to date development/operational testing locations.

D. Acquisition Strategy

The JMS overarching Acquisition Strategy, approved by the Milestone Decision Authority on 15 Apr 2012, provides for a multi-increment program to develop, integrate, test, and deliver JMS capability. The acquisition strategy reflects new principles that address the speed, agility, and adaptability required for successful IT acquisition resulting in a tailored incremental acquisition approach to deliver early and often by leveraging mature industry capabilities and taking advantage of previous Government investments in Federally Funded Research and Development Center (FFRDC) and Government lab prototyping efforts.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305614F / JSPOC Mission System	Project (Number/Name) 67A030 / Infrastructure
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
SOA, Infrastructure and core service development	MIPR	ISS, TDKC : Various	52.529	18.175	Dec 2014	6.744	Dec 2015	0.000		0.000		0.000	0.000	77.448	77.448
Interim Contractor Support (ICS)	MIPR	ISS : Colorado Springs, CO	2.170	0.060	Dec 2014	0.000		0.000		0.000		0.000	0.000	2.230	2.230
High-performance computing and security infrastructure development	MIPR	MIT/LL : Lexington, MA	24.032	3.465	Dec 2014	2.031	Dec 2015	0.000		0.000		0.000	0.000	29.528	29.528
Government Capability Providers	MIPR	MIT/LL : Lexington, MA	0.000	0.000		0.000		1.575	Dec 2016	0.000		1.575	0.000	1.575	1.575
JMS Enterprise SEI	Various	Various : Various	0.000	0.000		0.000		22.655	Nov 2016	0.000		22.655	0.000	22.655	22.655
Mission Infrastructure	Various	Various : Various	23.742	5.572	Nov 2014	8.050	Nov 2015	0.000		0.000		0.000	0.000	37.364	37.364
Net-Centric Sensors and Data Sources	TBD	TBD : TBD	0.000	0.000		0.835	Nov 2015	0.000		0.000		0.000	0.000	0.835	0.835
Standard Space Trainer	C/TBD	Sonalyt : Colorado Springs, CO	0.000	1.000	Oct 2015	2.150	Nov 2015	2.275	Nov 2016	0.000		2.275	0.000	5.425	5.425
Integration & Acq Logistics	MIPR	SPAWAR : San Diego, CA	26.581	8.922	Dec 2014	7.504	Nov 2015	0.000		0.000		0.000	0.000	43.007	43.007
Subtotal			129.054	37.194		27.314		26.505		0.000		26.505	0.000	220.067	220.067

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Support Costs	Various	Various : Various	0.842	0.000		0.000		0.250	Nov 2016	0.000		0.250	0.000	1.092	1.092
Subtotal			0.842	0.000		0.000		0.250		0.000		0.250	0.000	1.092	1.092

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Combined Developmental Test / Operational Test	Various	Various : Various	4.959	0.000		0.000		0.000		0.000		0.000	0.000	4.959	4.959

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305614F / JSPOC Mission System	Project (Number/Name) 67A030 / Infrastructure
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Commerical Software Operation Licenses (Nov 2015)	1	2016	1	2016
Service Pack 7 Delivery	1	2015	1	2015
Service Pack 9 Development and Delivery	1	2015	2	2017
Service Pack 11 Development and Delivery	1	2015	4	2017
Service Pack 13 Development and Delivery	3	2016	1	2018
Inc 2 Milestone C	1	2018	1	2018
Inc 2 Full Deployment Decision (FDD)	2	2018	2	2018

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force										Date: February 2016		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0305614F / JSPOC Mission System				Project (Number/Name) 67A031 / Mission Applications			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
67A031: Mission Applications	159.164	43.383	38.270	20.496	0.000	20.496	0.000	0.000	0.000	0.000	0.000	261.313
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Mission applications provides space services to enhance the accuracy, sustainability, and responsiveness of space surveillance capabilities by providing the knowledge environment necessary to enable the Commander JFCC Space to make rapid, responsive decisions for the protection of space assets from proliferating threats (adversary as well as orbiting debris). The system provides a high accuracy space catalog (knowledge of space objects), increased observation verification and capabilities, and improved event processing. Research, development, and system design provides SSA space catalog applications, services, space surveillance observation processing, and sensor tasking. Funding includes technical studies, development, and integration.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2015	FY 2016	FY 2017
Title: Increment 2	43.383	38.270	20.496
Description: Services/mission applications to conduct space control/situational awareness.			
FY 2015 Accomplishments: Continued development, testing and fielding of commercial software, provided mission services such as improved resident space object accuracy, breakup processing, launch processing, high priority tasking and additional conjunction assessment tools; efforts associated with the focus on retirement of legacy functionality.			
FY 2016 Plans: Continue development, testing and fielding of commercial software, providing mission services such as exercise/training capabilities, high priority sensor tasking, integration of special access data sources and other operator tools.			
FY 2017 Plans: Complete testing and fielding of commercial software for event processing functions, complete integration of exercise/training capabilities, high priority sensor tasking, integration of special access data sources and other operator tools.			
Accomplishments/Planned Programs Subtotals	43.383	38.270	20.496

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

Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• SPAF: BA01: Line Item #836790: Space Mods Space	0.000	0.000	0.000	0.000	0.000	11.843	12.254	12.471	12.695	Continuing	Continuing

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305614F / JSPOC Mission System	Project (Number/Name) 67A031 / Mission Applications
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u> <u>Base</u>	<u>FY 2017</u> <u>OCO</u>	<u>FY 2017</u> <u>Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• OMAF: PE0305614F: <i>JSPOC Mission System</i>	8.948	27.188	23.510	0.000	23.510	25.326	29.439	24.023	24.456	Continuing	Continuing

Remarks

D. Acquisition Strategy

The JMS overarching Acquisition Strategy, approved by the Milestone Decision Authority on 15 Apr 2012, provides for a multi-increment program to develop, integrate, test, and deliver JMS capability. The acquisition strategy reflects new principles that address the speed, agility, and adaptability required for successful IT acquisition resulting in a tailored incremental acquisition approach to deliver early and often by leveraging mature industry capabilities and taking advantage of previous Government investments in Federally Funded Research and Development Center (FFRDC) and Government lab prototyping efforts.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305614F / JSPOC Mission System	Project (Number/Name) 67A031 / Mission Applications
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Breakup, debris modeling, and NUDET applications	MIPR	National Labs : Various	5.935	0.000		0.000		0.000		0.000		0.000	0.000	5.935	5.935
Continuity of operations pathfinder	C/CPFF	Lockheed Martin : Chantilly, VA	8.000	0.000		0.000		0.000		0.000		0.000	0.000	8.000	8.000
Mission applications and service pack content development	Various	Various : Various	39.037	10.056	Dec 2014	14.833	Dec 2015	0.000		0.000		0.000	0.000	63.926	63.926
Service pack deployment and evaluation	RO	SPAWAR and MITRE : Los Angeles and San Diego, CA	0.846	0.000		0.000		0.000		0.000		0.000	0.000	0.846	0.846
Positive object ID, rapid object characterization, and dynamic sensor tasking risk reduction	MIPR	MIT/LL, AFRL : Various	11.252	0.000		0.000		0.000		0.000		0.000	0.000	11.252	11.252
High performance computing and security infrastructure development	MIPR	MIT/LL : Lexington, MA	21.525	0.000		0.000		0.000		0.000		0.000	0.000	21.525	21.525
JMS Enterprise SEI	Various	Various : Various	0.000	0.000		0.000		5.130	Nov 2016	0.000		5.130	0.000	5.130	5.130
Technical Mission Analysis (WS)	MIPR	Aerospace : Los Angeles, CA	0.000	1.844	Nov 2014	1.152	Nov 2015	1.835	Nov 2016	0.000		1.835	0.000	4.831	4.831
COTS hardware, software purchase and engineering support	C/Various	AGI, Exton, PA; ai Solutions, Lanham, MD; SPAWAR, San Diego, CA : Various	28.313	23.038	Nov 2014	13.965	Nov 2015	7.168	Nov 2016	0.000		7.168	0.000	72.484	72.484
Subtotal			114.908	34.938		29.950		14.133		0.000		14.133	0.000	193.929	193.929

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Support Costs	Various	Various : Various	0.807	0.374	Nov 2014	0.361	Nov 2015	0.372	Nov 2016	0.000		0.372	0.000	1.914	1.914
Subtotal			0.807	0.374		0.361		0.372		0.000		0.372	0.000	1.914	1.914

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305614F / JSPOC Mission System	Project (Number/Name) 67A031 / Mission Applications
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Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Combined Developmental Test / Operational Test	Various	Various : Various	6.600	1.959	Nov 2014	2.300	Nov 2015	2.300	Nov 2016	0.000		2.300	0.000	13.159	13.159
Combined Test Facility	Various	Various : Various	4.189	1.764	Nov 2014	1.623	Nov 2015	1.633	Nov 2016	0.000		1.633	0.000	9.209	9.209
Subtotal			10.789	3.723		3.923		3.933		0.000		3.933	0.000	22.368	22.368

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
A&AS	Various	Various : Various	9.076	2.496	Dec 2014	2.912	Dec 2015	0.432	Dec 2016	0.000		0.432	0.000	14.916	14.916
FFRDC - Mitre	MIPR	Mitre : Bedford, MA	16.523	1.250	Dec 2014	0.686	Dec 2015	1.040	Dec 2016	0.000		1.040	0.000	19.499	19.499
FFRDC - Aerospace	MIPR	Aerospace : Los Angeles, CA	1.052	0.448	Dec 2014	0.288	Dec 2015	0.459	Dec 2016	0.000		0.459	0.000	2.247	2.247
Other Support	Various	Various : Various	0.000	0.154	Dec 2014	0.150	Dec 2015	0.127	Dec 2016	0.000		0.127	0.000	0.431	0.431
Mission Applications Enterprise Systems Engineering and Integration	Various	Not specified. : TBD	6.009	0.000		0.000		0.000		0.000		0.000	0.000	6.009	6.280
Subtotal			32.660	4.348		4.036		2.058		0.000		2.058	0.000	43.102	43.373

	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	159.164	43.383	38.270	20.496	0.000	20.496	0.000	261.313	261.584

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305614F / JSPOC Mission System	Project (Number/Name) 67A031 / Mission Applications
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	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Commerical Software Operation Licenses (Nov 2015)																												
Service Pack 7 Delivery																												
Service Pack 9 Development and Delivery																												
Service Pack 11 Development and Delivery																												
Service Pack 13 Development and Delivery																												
Inc 2 Milestone C																												
Increment 2 FDD																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305614F / JSPOC Mission System	Project (Number/Name) 67A031 / Mission Applications
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Commerical Software Operation Licenses (Nov 2015)	1	2016	1	2016
Service Pack 7 Delivery	1	2015	1	2015
Service Pack 9 Development and Delivery	1	2015	2	2017
Service Pack 11 Development and Delivery	1	2015	4	2017
Service Pack 13 Development and Delivery	3	2016	1	2018
Inc 2 Milestone C	1	2018	1	2018
Increment 2 FDD	2	2018	2	2018

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force										Date: February 2016		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0305614F / JSPOC Mission System				Project (Number/Name) 67A035 / INCREMENT 3			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
67A035: INCREMENT 3	0.000	0.000	12.381	24.867	0.000	24.867	62.799	65.388	66.739	69.408	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Increment 3 will provide a Battle Management Command & Control (BMC2) System that allows JFCC Space to meet emerging threats. This system will develop and integrate mission applications which include, but are not limited to, providing the ability to aggregate intelligence data from various user-defined sources and automatically generating alerts, provide an integrated operating picture for radio frequency spectrum inputs, and create an interactive modeling and simulation environment to support training and exercises, collaborative data sharing, and Course of Action (COA) development and assessment. Funding includes technical studies, development, experimentation, integration and related support costs.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2015	FY 2016	FY 2017
Title: Increment 3	0.000	12.381	24.867
Description: Services/mission applications to deliver a robust, responsive BMC2 capability to meet emerging threats. Completion of Increment 3 will satisfy remaining JMS Capability Development Document requirements content.			
FY 2015 Accomplishments: N/A			
FY 2016 Plans: Beginning systems engineering, requirements refinement and program planning for Increment-3. Conduct technical maturation studies and risk reduction efforts to enable migration from catalog maintenance to predictive battle management and improved integration planning for intelligence and sensor data. Perform market research and data calls to determine existing capabilities that can be integrated into JMS to meet BMC2 objectives. Identify low tech maturity areas and mitigate program risk and include early prototyping.			
FY 2017 Plans: Finalize requirements development to support service pack design, continue systems engineering and program planning for Increment-3. Continue technical maturation and risk reduction efforts to migrate from catalog maintenance of space to predictive battle management and conduct integration of intelligence and sensor data. Perform market research and data calls to determine existing capabilities that can be integrated into JMS to meet BMC2 objectives. Initial contracts should be awarded in the FY18 timeline. Initial Service Pack Design, Build, and test will commence leveraging prior Government Off The Shelf (GOTS) capabilities at mature Technology Readiness Levels (TRL) from within Air Force Research Laboratory (AFRL) development environments.			
Accomplishments/Planned Programs Subtotals	0.000	12.381	24.867

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305614F / JSPOC Mission System	Project (Number/Name) 67A035 / INCREMENT 3
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C. Other Program Funding Summary (\$ in Millions)

Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• SPAF: BA01: Line Item #836790: <i>Space Mods Space</i>	0.000	0.000	0.000	0.000	0.000	11.843	12.254	12.471	12.695	Continuing	Continuing
• OMAF: PE 0305614F: <i>JSPOC Mission System</i>	8.948	27.188	23.510	0.000	23.510	25.326	29.439	24.023	24.456	Continuing	Continuing

Remarks

D. Acquisition Strategy

The Air Force is in the process of updating the acquisition strategy for JMS Increment 3. For previous increments, the Program Management Office is using a government led integration effort using the Navy SPAWAR Systems Center and incremental service pack deliveries for operations. The JMS Inc 3 Acquisition strategy should allow rapid capability prototyping to address emerging needs and threats.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305614F / JSPOC Mission System	Project (Number/Name) 67A035 / INCREMENT 3
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
BMC2 Tools	TBD	TBD : TBD	0.000	0.000		0.000		0.000		0.000		0.000	Continuing	Continuing	TBD
Government Capability Development	TBD	TBD : TBD	0.000	0.000		3.204	Apr 2016	13.865	Dec 2016	0.000		13.865	Continuing	Continuing	TBD
JMS Enterprise Systems Engineering & Integration	Various	Various : Various	0.000	0.000		3.633	Apr 2016	5.529	Dec 2016	0.000		5.529	Continuing	Continuing	TBD
Technical Mission Analysis (WS)	Various	Various : Various	0.000	0.000		0.000		0.100	Dec 2016	0.000		0.100	Continuing	Continuing	TBD
SSA Sidecars	TBD	TBD : TBD	0.000	0.000		0.000		0.835	Dec 2016	0.000		0.835	Continuing	Continuing	TBD
Hardware	TBD	TBD : TBD	0.000	0.000		0.000		0.000		0.000		0.000	Continuing	Continuing	TBD
Subtotal			0.000	0.000		6.837		20.329		0.000		20.329	-	-	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
A&AS	TBD	Not specified. : TBD	0.000	0.000		0.000		0.000		0.000		0.000	Continuing	Continuing	TBD
Subtotal			0.000	0.000		0.000		0.000		0.000		0.000	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Combined Developmental Test / Operational Test	TBD	Not specified. : TBD	0.000	0.000		0.000		0.000		0.000		0.000	Continuing	Continuing	TBD
Combined Test Facility	TBD	Not specified. : TBD	0.000	0.000		0.000		0.000		0.000		0.000	Continuing	Continuing	TBD
Subtotal			0.000	0.000		0.000		0.000		0.000		0.000	-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305614F / JSPOC Mission System	Project (Number/Name) 67A035 / INCREMENT 3
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Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
A&AS	Various	Various : Various	0.000	0.000		2.494	Apr 2016	3.958	Nov 2016	0.000		3.958	Continuing	Continuing	TBD
FFRDC - Mitre	MIPR	Mitre : El Segundo, CA	0.000	0.000		2.000	Apr 2016	0.000		0.000		0.000	Continuing	Continuing	TBD
FFRDC - Aerospace	MIPR	Aerospace : El Segundo, CA	0.000	0.000		1.000	Apr 2016	0.500	Oct 2016	0.000		0.500	Continuing	Continuing	TBD
Other Support	TBD	Not specified. : TBD	0.000	0.000		0.050	Apr 2016	0.080	Oct 2016	0.000		0.080	Continuing	Continuing	TBD
Subtotal			0.000	0.000		5.544		4.538		0.000		4.538	-	-	-
Project Cost Totals			0.000	0.000		12.381		24.867		0.000		24.867	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305614F / JSPOC Mission System	Project (Number/Name) 67A035 / INCREMENT 3
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	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Milestone A									■																			
Milestone B													■															
Contract Award													■															
Service Pack 15 Development and Delivery													■	■	■	■												
Service Pack 17 Development and Delivery																	■	■	■	■								
Service Pack 19 Development and Delivery																					■	■	■	■				
Service Pack 21 Development and Delivery																									■	■	■	■

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305614F / JSPOC Mission System	Project (Number/Name) 67A035 / INCREMENT 3
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Milestone A	1	2017	1	2017
Milestone B	4	2017	4	2017
Contract Award	1	2018	1	2018
Service Pack 15 Development and Delivery	2	2018	3	2019
Service Pack 17 Development and Delivery	2	2019	3	2020
Service Pack 19 Development and Delivery	2	2020	3	2021
Service Pack 21 Development and Delivery	2	2021	4	2021

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0305881F / <i>Rapid Cyber Acquisition</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	-	3.959	3.149	4.280	0.000	4.280	4.885	4.334	4.414	4.493	Continuing	Continuing
670374: <i>Electronic Combat Spt, C3 Protection/Multi-Mission, Technology and Spt</i>	-	3.959	3.149	4.280	0.000	4.280	4.885	4.334	4.414	4.493	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Rapid Cyber Acquisition (RCA) provides combatant commanders with the ability to rapidly respond to emerging cyber needs. RCA provides rapid fielding of capabilities in three areas: defend the Air Force portion of the DoD Global Information Grid (GIG) in response to new and emerging threats; network attack and cyber exploit capabilities through all phases of warfare; and new cyber operations capabilities that address gaps to support evolving missions.

Rapid Cyber Acquisition delivers cyber capabilities to 24th Air Force (24 AF) warfighters in mission-relevant timeframes. RCA provides capabilities in support of US national security interests, to counter current and future cyber threats, and to enhance the nation's ability to operate in cyberspace. It expedites cyber development and modifications of USAF and DoD cyber capabilities. RCA provides solution sets for cyberspace operations: attack, defense, command and control/situational awareness, exploitation, critical infrastructure support, and combat support. RCA provides integration, and technical support to other Service and Government Agency activities to leverage select Air Force-developed technologies and/or operational capabilities. RCA will develop materiel or non-materiel cyber solutions, conduct rapid prototyping, integration and transition activities for cyber systems. Activities include, but are not limited to: development of software/hardware cyber systems; integration and transition of DoD lab-developed cyber capabilities to the warfighter; testing and evaluation; program management administration, studies, analysis, pilots, demonstrations, and risk reduction for emerging technologies. Congress will be notified when projects have been approved for development by the end of the fiscal year via Congressional Notification Letters.

The FY2017 funding request was reduced by \$0.849 million to account for the availability of prior year execution balances.

This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force				Date: February 2016		
Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>		R-1 Program Element (Number/Name) PE 0305881F / <i>Rapid Cyber Acquisition</i>				
B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	
Previous President's Budget	4.102	3.149	4.817	0.000	4.817	
Current President's Budget	3.959	3.149	4.280	0.000	4.280	
Total Adjustments	-0.143	0.000	-0.537	0.000	-0.537	
• Congressional General Reductions	0.000	0.000				
• Congressional Directed Reductions	0.000	0.000				
• Congressional Rescissions	0.000	0.000				
• Congressional Adds	0.000	0.000				
• Congressional Directed Transfers	0.000	0.000				
• Reprogrammings	0.000	0.000				
• SBIR/STTR Transfer	-0.143	0.000				
• Other Adjustments	0.000	0.000	-0.537	0.000	-0.537	
C. Accomplishments/Planned Programs (\$ in Millions)				FY 2015	FY 2016	FY 2017
Title: Hardware/Software Development				3.859	2.949	4.080
Description: Hardware and software information assurance risk reduction activities in support of urgent cyberspace defensive, offensive, and command and control/situational awareness requirements.						
FY 2015 Accomplishments:						
- Developed urgent cyber operational capabilities:						
-- Mission Oriented Mapping						
-- Automated Service Interruption						
-- Vulnerability Remediation Asset Manager						
-- Cyber Mission Team Tools						
FY 2016 Plans:						
- Continue development, integration, and technical support to Air Force, other Service, and other Government Agency activities						
- Leverage develop, and integrate select Air Force developed technologies and/or operational capabilities						
- Provide independent operational and technical assessments of cyber capabilities and vulnerabilities.						
FY 2017 Plans:						
- Will continue development, integration, and technical support to Air Force, other Services, and other Government Agency activities						
- Will continue to leverage select Air Force developed technologies and/or operational capabilities.						
- Will continue to provide independent operational and technical assessments of cyber capabilities and vulnerabilities						
Title: Hardware Integration				0.100	0.100	0.100

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0305881F / <i>Rapid Cyber Acquisition</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
<p>Description: Continue integration of developed and acquired capabilities.</p> <p>FY 2015 Accomplishments:</p> <ul style="list-style-type: none"> - Continue integration and technical support of select Air Force developed technologies and/or operational capabilities - Provide independent operational and technical assessments of cyberspace capabilities and vulnerabilities <p>FY 2016 Plans:</p> <ul style="list-style-type: none"> - Continue integration and technical support of select Air Force developed technologies and/or operational capabilities - Provide independent operational and technical assessments of cyberspace capabilities and vulnerabilities <p>FY 2017 Plans:</p> <ul style="list-style-type: none"> - Will continue integration and technical support of select Air Force developed technologies and/or operational capabilities - Will continue to provide independent operational and technical assessments of cyberspace capabilities and vulnerabilities 			
<p>Title: Test & Evaluation</p> <p>Description: Provides a secure test network environment for new tool development</p> <p>FY 2015 Accomplishments: N/A</p> <p>FY 2016 Plans:</p> <ul style="list-style-type: none"> - Continue developmental testing of tool development prior to future fielding - Continue to provide a secure network environment for required test events <p>FY 2017 Plans:</p> <ul style="list-style-type: none"> - Will continue developmental testing of tool development prior to future fielding - Will continue to provide a secure network environment for required test events 	0.000	0.100	0.100
Accomplishments/Planned Programs Subtotals	3.959	3.149	4.280

D. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u> <u>Base</u>	<u>FY 2017</u> <u>OCO</u>	<u>FY 2017</u> <u>Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• N/A: N/A	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	-
Remarks											

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force Date: February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0305881F / <i>Rapid Cyber Acquisition</i>
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E. Acquisition Strategy
Rapid Cyber Acquisition utilizes a flexible acquisition strategy that facilitates delivering material and non-material solutions to solve cyber needs. This approach allows flexibility for solutions to enter into the acquisitions process at any phase of the acquisitions life cycle management system. These plans are intended to meet the written acquisition planning requirements and guidance. All plans will contain sufficient information for the Milestone Decision Authority to determine readiness to enter into the applicable phase of the acquisition process. Rapid Cyber Acquisition considers existing contracting vehicles, including but not limited to: Network Centric Solutions (NETCENTS), NETCENTS 2, Information Technology Enterprise Solutions-2 (ITES-2), Government-Wide Acquisition Contract vehicles (Alliant, Encore II, Solutions for Enterprise-Wide Procurement IV (SEWP IV)), General Services Administration Federal Supply Schedules, HNCY Cyber Indefinite Delivery Indefinite Quantity (IDIQ) contract, National Security Agency vehicles and Cyber Warfare Systems Branch Class Justification and Approval document. Multiple award contractual vehicles, such as National Aeronautics and Space Administration's SEWP IV, provide a wide range of commercially-available products and services that should be able to meet many requirements related to Rapid Cyber Acquisition. These multiple-award vehicles have already met the statutory requirements of the Competition in Contracting Act and only require that Rapid Cyber Acquisition provide a fair opportunity to all contract holders, in accordance with Federal Acquisition Regulation 16.505, unless an exception to fair opportunity applies.

F. Performance Metrics
Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force											Date: February 2016				
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0305881F / <i>Rapid Cyber Acquisition</i>					Project (Number/Name) 670374 / <i>Electronic Combat Spt, C3 Protection/Multi-Mission, Technology and Spt</i>				

Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Mission Oriented Mapping	MIPR	AFRL : Rome, NY	-	1.769	Dec 2015	0.000		0.170	Dec 2016	0.000		0.170	Continuing	Continuing	-
Secure Data Warehouse	MIPR	Northrup Grumman : McLean, VA	-	1.680	Feb 2015	0.000		0.000		0.000		0.000	Continuing	Continuing	-
One Way Link	TBD	TBD : TBD	-	0.000		1.000	Mar 2016	0.000		0.000		0.000	Continuing	Continuing	-
Install AF Infrastructure at CMF Sites	SS/FFP	IOMAXIS : Springfield, VA	-	0.200	Aug 2015	0.000		0.000		0.000		0.000	Continuing	Continuing	-
Deployed Access 92 IOS Ops Center	MIPR	AFRL : Rome, NY	-	0.000		0.649	Mar 2016	0.000		0.000		0.000	Continuing	Continuing	-
Automated Cyber Tool Development	MIPR	DARPA : Arlington, VA	-	0.000		0.600	Dec 2015	0.000		0.000		0.000	Continuing	Continuing	-
Cyber Operations Research Terminal	TBD	TBD : TBD	-	0.000		0.600	Feb 2016	0.000		0.000		0.000	Continuing	Continuing	-
Auto Compliance Tracking	MIPR	ASI Automation : San Diego, CA	-	0.110	Aug 2015	0.000		0.000		0.000		0.000	Continuing	Continuing	-
HW/SW Development	Various	Various : Various	-	0.000	Nov 2014	0.100	Jan 2016	3.810	Jan 2017	0.000		3.810	0.000	3.910	-
HW Integration	Various	Various : TBD	-	0.100	Jan 2015	0.100	Jan 2016	0.100	Jan 2017	0.000		0.100	0.000	0.300	-
Subtotal			-	3.859		3.049		4.080		0.000		4.080	-	-	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			-	-		-		-		-		-	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
46TS Det 2	MIPR	TASC : San Antonio, TX	-	0.100	Jan 2015	0.100	Jan 2016	0.200	Jan 2017	0.000		0.200	0.000	0.400	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305881F / Rapid Cyber Acquisition	Project (Number/Name) 670374 / Electronic Combat Spt, C3 Protection/Multi-Mission, Technology and Spt
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Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	0.100		0.100		0.200		0.000		0.200	0.000	0.400	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	3.959	3.149	4.280	0.000	4.280	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305881F / <i>Rapid Cyber Acquisition</i>	Project (Number/Name) 670374 / <i>Electronic Combat Spt, C3 Protection/Multi-Mission, Technology and Spt</i>

	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Mission Oriented Mapping																												
Secure Data Warehouse																												
One Way Link																												
Install AF Infrastructure at CMF Team Sites																												
Deployed Access 92 IOS Ops Center																												
Automated Cyber Tool Development																												
Cyber Operations Research Terminal (Details Classified)																												
Auto Compliance Tracking																												
HW/SW Development																												
HW/SW Integration, Test and Evaluation																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305881F / <i>Rapid Cyber Acquisition</i>	Project (Number/Name) 670374 / <i>Electronic Combat Spt, C3 Protection/Multi-Mission, Technology and Spt</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Mission Oriented Mapping	4	2015	4	2016
Secure Data Warehouse	2	2015	2	2016
One Way Link	2	2016	2	2017
Install AF Infrastructure at CMF Team Sites	4	2015	4	2016
Deployed Access 92 IOS Ops Center	2	2016	2	2017
Automated Cyber Tool Development	1	2016	1	2017
Cyber Operations Research Terminal (Details Classified)	2	2016	4	2016
Auto Compliance Tracking	4	2015	4	2016
HW/SW Development	1	2015	4	2021
HW/SW Integration, Test and Evaluation	2	2015	4	2021

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force / BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0305906F / NCMC - TW/AA System
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	-	0.000	0.000	4.951	0.000	4.951	0.000	0.000	0.000	0.000	0.000	4.951
67A051: <i>Space Superiority - Advanced Intelligence Systems</i>	-	0.000	0.000	4.951	0.000	4.951	0.000	0.000	0.000	0.000	0.000	4.951
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

This program, BA 07 PE 0305906F, project 67A051, ITW/AA AOA, is a new start.

A. Mission Description and Budget Item Justification

This program element supports development activities for the current and potential future NORAD Cheyenne Mountain Complex - Integrated Tactical Warning Attack Assessment (NCMC-ITW/AA) system providing authorities with accurate, timely, unambiguous warning and attack assessment of air, missile and space threats.

BA7- This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

B. Program Change Summary (\$ in Millions)	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>
Previous President's Budget	0.000	0.000	0.000	0.000	0.000
Current President's Budget	0.000	0.000	4.951	0.000	4.951
Total Adjustments	0.000	0.000	4.951	0.000	4.951
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	4.951	0.000	4.951

Change Summary Explanation

FY17: Funding added to complete an Analysis of Alternatives for the Integrated Tactical Warning and Attack Assessment (ITW/AA) Command and Control (C2) system.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0305906F / NCMC - TW/AA System
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
Title: ITW/AA AOA Description: Conduct Analysis of Alternatives (AOA) for the Integrated Tactical Warning and Attack Assessment (ITW/AA) Command and Control (C2) system. FY 2015 Accomplishments: N/A FY 2016 Plans: N/A FY 2017 Plans: Conduct Analysis of Alternatives (AOA) for the Integrated Tactical Warning and Attack Assessment (ITW/AA) Command and Control (C2) system.	0.000	0.000	4.951
Accomplishments/Planned Programs Subtotals	0.000	0.000	4.951

D. Other Program Funding Summary (\$ in Millions)

N/A

Remarks

E. Acquisition Strategy

N/A

F. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force												Date: February 2016			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
3600 / 7				PE 0305906F / NCMC - TW/AA System				67A051 / Space Superiority - Advanced Intelligence Systems							
Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
ITW/AA Analysis of Alternatives	TBD	TBD : TBD	-	0.000		0.000		4.951	May 2017	0.000		4.951	Continuing	Continuing	-
Subtotal			-	0.000		0.000		4.951		0.000		4.951	-	-	-
Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			-	-		-		-		-		-	-	-	-
Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			-	-		-		-		-		-	-	-	-
Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			-	-		-		-		-		-	-	-	-
Project Cost Totals			-	0.000		0.000		4.951		0.000		4.951	-	-	-
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305906F / NCMC - TW/AA System	Project (Number/Name) 67A051 / Space Superiority - Advanced Intelligence Systems

FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

ITW/AA Analysis of Alternatives																												
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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305906F / NCMC - TW/AA System	Project (Number/Name) 67A051 / Space Superiority - Advanced Intelligence Systems

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
ITW/AA Analysis of Alternatives	3	2017	2	2018

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0305913F / <i>NUDET Detection System (SPACE)</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	-	20.405	14.403	21.093	0.000	21.093	31.418	19.919	17.093	14.268	Continuing	Continuing
672808: <i>Nuc Detonation Det Sys (sensors)</i>	-	20.405	14.403	21.093	0.000	21.093	31.418	19.919	17.093	14.268	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The United States Nuclear Detonation (NUDET) Detection System (USNDS) provides a near real-time worldwide, highly survivable/endurable capability to detect, locate, and report any nuclear detonations in the earth's atmosphere or in near space. USNDS supports NUDET detection requirements across five mission areas: Integrated Tactical Warning and Attack Assessment (ITW/AA), Nuclear Force Management (NFM), Space Control (SC), Treaty Monitoring (TM), and a classified mission.

The USNDS program is jointly sponsored and funded by the Department of Defense (DoD), through the US Air Force (AF), and the Department of Energy (DOE), through the National Nuclear Security Administration (NNSA) and its Nuclear Detonation Detection (NA-22) office, respectively. NNSA/NA-22 supplies, at no cost to DoD, USNDS space sensors as Government Furnished Equipment (GFE) to the AF's USNDS Program Office, which is responsible for all acquisition and systems engineering, integration and test (SEIT) activities on space vehicles (SVs), to include Global Positioning System (GPS) and additional hosts, and their supporting ground control segments. The AF directly funds the development of the USNDS ground segment (described below).

DoD funds their contribution to the NDS program in Program Element (PE) 0305913F with RDT&E, OPAF, SPAF and O&M dollars.

USNDS consists of space sensors and complex ground segments. The space segment sensors, funded by DOE, consists of three nuclear detection sensor payloads: the Radiation Detection Capability (RADEC) payload for Defense Support Program (DSP) satellites, the Global Burst Detection (GBD) payload for Medium Earth Orbit (MEO) platforms (GPS satellites), and the Space Atmospheric Burst Reporting System (SABRS) payload for Geosynchronous Earth Orbit (GEO) platforms (classified GEO host). Together, these sensors and associated communications capability provided by the host satellites comprise the global NUDET space segment detection capability for the USNDS. Space sensors communicate NUDET indications to the fixed ground segment (the RADEC Data Processor (RDP) and the Integrated Correlation and Display System (ICADS)), the deployable mobile ground segment (survivable Ground NDS Terminals (GNTs)), and the survivable/endurable Universal Ground NDS Terminals (UGNTs), when fielded. These ground systems perform data analysis and provide a decision support tool to the Air Force controllers concerning probability of NUDET occurrence. The ground segment provides ground receiving analysis and reporting capabilities to national authorities, commands, and forward users as well as Department of State (DOS) for the Treaty Monitoring and Verification mission. The ground control segment is being modernized and continuously improved through an incremental, evolutionary acquisition approach.

The upgrade to the GNT is the survivable/endurable Universal Ground Nuclear Detonation (NUDET) Detection System (NDS) Terminal which is funded with AF RDT&E in this PE. The UGNT provides NUDET Detection Reports to end users through survivable and endurable USNDS communications via Milstar/Advanced Extremely High Frequency (AEHF) circuits. The GNT supports ITW/AA and NFM missions. The UGNT program modifies the baseline of the GNT program and deploys as an integral

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0305913F / <i>NUDET Detection System (SPACE)</i>
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part of the Space Based Infrared System (SBIRS) Survivable / Endurable Evolution (S2E2) Mobile Ground System (SMGS) units also in support of ITW/AA and NFM. The UGNT, when integrated with the SMGS, will perform NUDET event processing with fused NDS data from GPS and DSP. SMGS capability refers to the result of the S2E2 upgrade program for the MGS mission processing capability, including the integration of UGNT. The intended end state of UGNT integration is delivery of enhanced missile warning and NUDET detection capabilities that meet survivable/endurable ITW/AA requirements directed by the President, SECDEF, Joint Staff, and USSTRATCOM, delivering long-term, cost effective, multi-role, multi-mission space effects to the war fighter across the range of military operations.

This budget line includes systems engineering, research and development, on-orbit and field testing and end-to-end verification of USNDS space sensors, ground analysis and reporting systems in support of the five USNDS mission areas. Sensor integration for GPS IIF and GPS III are funded in their respective PEs.

This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	20.405	14.447	18.785	0.000	18.785
Current President's Budget	20.405	14.403	21.093	0.000	21.093
Total Adjustments	0.000	-0.044	2.308	0.000	2.308
• Congressional General Reductions	0.000	-0.044			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	2.308	0.000	2.308

Change Summary Explanation

FY17: +\$2.308M to fund On-Orbit Support of USNDS Sensors

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
Title: ICADS	6.843	-	-
Description: Satellite ground data processing system that reports endo-atmospheric, transition and near-space nuclear detonations (NUDETs) as detected by the NDS sensors aboard the GPS and DSP satellites and SABRS equipped satellites.			
FY 2015 Accomplishments:			

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force		Date: February 2016		
Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>		R-1 Program Element (Number/Name) PE 0305913F / <i>NUDET Detection System (SPACE)</i>		
C. Accomplishments/Planned Programs (\$ in Millions)		FY 2015	FY 2016	FY 2017
Completed ITW/AA certification for ICADS Delivery 2. Completed Operational delivery of ICADS Build 6 Delivery 2 to support GPS III SVs 01-08.				
<p>Title: UGNT</p> <p>Description: Delivers enhanced missile warning and NUDET detection capabilities that meet survivable/endurable tactical warning and attack assessment requirements directed by the President, SECDEF, Joint Staff and USSTRATCOM delivering long-term, cost effective, multi-role, multi-mission space effects to the warfighter across the range of military operations.</p> <p>FY 2015 Accomplishments: Completed integration of 2 UGNT shelters. Began contractor DT&E of 2 UGNT shelters for delivery for initial S2E2 integration in 2QFY17.</p> <p>FY 2016 Plans: Complete contractor and Air Force DT&E of UGNTs. Begin final testing and integration of hardware and software into the third UGNT trailer.</p> <p>FY 2017 Plans: Deliver first, second and third UGNT trailer to the SBIRS S2E2 program for integration into the S2E2 Force Package (FPAK).</p>		5.639	8.864	15.091
<p>Title: Systems Engineering/On-Orbit Support & Testing</p> <p>Description: Support costs include such activities as, on-orbit NDS sensor integration, check-out/support, testing and system engineering.</p> <p>FY 2015 Accomplishments: Provided SE&I, technical support and program technical support for the five NDS mission areas. Delivered GBD for GPS III SV03 and support SV integration activities. Supported GPS IIF-8, IIF-9 and IIF-10 integration checkout of NDS sensors during launch and on-orbit activities.</p> <p>FY 2016 Plans: Provide SE&I, technical support and program technical support for the five NDS mission areas. Deliver GBD for GPS III SV04, SV05, and support SV integration activities. Support to GPS IIF-11 and IIF-12, integration checkout of NDS sensors during launch and on-orbit activities.</p> <p>FY 2017 Plans:</p>		7.923	5.539	6.002

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0305913F / <i>NUDET Detection System (SPACE)</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
Provide SE&I, technical support and program technical support for the five NDS mission areas. Deliver GBD for GPS III SV06 and SV07.			
Accomplishments/Planned Programs Subtotals	20.405	14.403	21.093

D. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• OPAF: BA03: Line Item # 836750: <i>Nudet Detection Sys Space</i>	4.656	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.656
• SPAF:BA03:Line Item # NUDETS: <i>Nudet Detection Sys Space</i>	0.000	5.095	4.395	0.000	4.395	6.357	6.469	6.583	6.701	Continuing	Continuing

Remarks

E. Acquisition Strategy
The USNDS Acquisition Strategy is to develop, integrate, field and sustain USNDS satellite sensors and USNDS ground data processing and distribution hardware and software as well as mission operational and technical program support to sustain the USNDS capability on GPS and DSP; funding is sent by Military Interdepartmental Purchase Request (MIPR) from DoD and Department of Energy (DOE) to Sandia, Lawrence Livermore, Los Alamos National Laboratories and other agencies on existing DOE/National Nuclear Security Administration (NNSA) contracts.

F. Performance Metrics
Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305913F / NUDET Detection System (SPACE)	Project (Number/Name) 672808 / Nuc Detonation Det Sys (sensors)
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
USNDS ICADS and GNT/UGNT	MIPR	Sandia National Laboratory : Albuquerque, NM	-	12.292	Nov 2014	8.864	Jan 2016	15.091	Nov 2016	0.000		15.091	Continuing	Continuing	-
USNDS Technical Mission Analysis	MIPR	Aerospace : El Segundo, CA	-	0.834	Nov 2014	1.757	Nov 2015	1.867	Nov 2016	0.000		1.867	Continuing	Continuing	-
USNDS Enterprise SE&I	C/CPAF	TASC : El Segundo, CA	-	1.410	Dec 2014	1.460	Dec 2015	1.140	Dec 2016	0.000		1.140	Continuing	Continuing	-
USNDS Associated Product Development	Various	Various : Various, CA	-	0.190	Jul 2015	0.000		0.000		0.000		0.000	Continuing	Continuing	-
Subtotal			-	14.726		12.081		18.098		0.000		18.098	-	-	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
USNDS Testing	Various	17th Test Squadron, JITC : Schriever AFB, CO	-	0.051	Dec 2014	0.329	Dec 2015	0.253	Dec 2016	0.000		0.253	Continuing	Continuing	-
USNDS On-orbit Sensor Testing	MIPR	Various : LANL, SNL, NM	-	2.532	Mar 2015	0.000		0.000		0.000		0.000	Continuing	Continuing	-
Subtotal			-	2.583		0.329		0.253		0.000		0.253	-	-	-

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305913F / NUDET Detection System (SPACE)	Project (Number/Name) 672808 / Nuc Detonation Det Sys (sensors)

	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
UGNT 1 Integration & Delivery	██████████																											
UGNT Maintenance/Training System Delivery	██████████																											
ICADS GPS III & LCS/OCX Delivery					██████████																							
UGNT 2 Integration & Delivery					██████████																							
UGNT Test Readiness Review					██████████																							
UGNT 1&2 to SBIRS Mobile Ground System									██████████																			
UGNT 3 Integration & Delivery					██████████																							
UGNT 3 to SBIRS Mobile Ground System													██████████															
UGNT 4-5 Integration & Delivery													██████████															
UGNT Initial Operations Capability																	██████████											

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305913F / NUDET Detection System (SPACE)	Project (Number/Name) 672808 / Nuc Detonation Det Sys (sensors)

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
UGNT 1 Integration & Delivery	1	2015	1	2016
UGNT Maintenance/Training System Delivery	1	2015	3	2015
ICADS GPS III & LCS/OCX Delivery	3	2015	4	2015
UGNT 2 Integration & Delivery	4	2015	2	2016
UGNT Test Readiness Review	4	2015	1	2016
UGNT 1&2 to SBIRS Mobile Ground System	1	2017	1	2017
UGNT 3 Integration & Delivery	1	2016	1	2017
UGNT 3 to SBIRS Mobile Ground System	4	2017	4	2017
UGNT 4-5 Integration & Delivery	3	2018	4	2018
UGNT Initial Operations Capability	1	2019	1	2019

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0305940F / <i>Space Situation Awareness Operations</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	-	11.017	20.016	35.002	0.000	35.002	22.803	6.619	5.352	5.351	Continuing	Continuing
670004: <i>Joint Interagency Combined Space Operations Center</i>	-	0.000	0.000	14.852	0.000	14.852	6.933	1.981	1.982	1.982	Continuing	Continuing
67A017: <i>Sensor Service Life Extension Program</i>	-	11.017	20.016	20.150	0.000	20.150	15.870	4.638	3.370	3.369	0.000	78.430

Note
 This program, BA 07 PE 0305940F, project 670004, JICSpOC Infrastructure, is a new start.
 This program, BA 07 PE 0305940F, project 67A017, Ground Radar Upgrades, is a new start.

A. Mission Description and Budget Item Justification

Space Situational Awareness (SSA) is knowledge of all aspects of space related to operations. As the foundation for space control, SSA encompasses surveillance of all space objects and activities; detailed reconnaissance of specific space assets; monitoring space environmental conditions; monitoring cooperative space assets; gathering intelligence on adversary space operations; and conducting integrated command, control, communications, processing, analysis, dissemination, and archiving activities. This program element fields, upgrades, operationalizes, operates and maintains Air Force sensors and information integration capabilities within the SSA network while companion program element 0604425F, Space Situational Awareness Systems, develops new network sensors and improved information integration capabilities across the network. Activities funded in this program element (0305940F) 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 (SLEPs) project funds efforts to upgrade, operationalize and extend the life of operational Space Situational Awareness (SSA) sensors, as needed. These SLEPs include, but are not limited to, programs which extend the serviceable life of assets and maintain critical capability by replacing aging and increasingly unsustainable components with modern and sustainable 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. The on-going Ground-based Electro Optics Deep Space Surveillance (GEODSS) Phase II is representative of sensor system upgrades 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.

The SSA Ops Demo creates a survivable architecture which provides overlapping, assured, and viable surveillance options for executing simultaneous safety of flight and event response. The demonstration develops software modifications to exploit data from legacy systems.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0305940F / <i>Space Situation Awareness Operations</i>
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Beginning in FY17 this program element will begin fielding and sustaining the Joint Interagency Combined Space Operations Center (JICSpOC) infrastructure in response to US Strategic Command Joint Emergent Operational Need (ST-0006). The JICSpOC seeks to improve unity of effort and information sharing across the national security space community to effectively respond to potential future space threat events and will have the capability to develop, test, and integrate new space system tactics, techniques and procedures (TTPs) in support of both DoD and Intelligence Community operations.

Also in FY17 this program element will begin a series of Ground Radar Upgrades designed to improve the sensitivity, search capability and CONOPS of existing SSA sensors to better support fire control timelines.

These efforts are in Budget Activity 7, Operational System Development, because they develop modifications for operational SSA sensors.

B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	11.408	20.077	8.583	0.000	8.583
Current President's Budget	11.017	20.016	35.002	0.000	35.002
Total Adjustments	-0.391	-0.061	26.419	0.000	26.419
• Congressional General Reductions	-0.391	-0.061			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	26.419	0.000	26.419

Change Summary Explanation

FY17: +2.8 for Space Control BMC3; +2.172 internal realignment of funding; +\$15.0M to sustain JICSpOC infrastructure; +\$10M SSA Ground Radar Upgrades; -\$3.6M to account for availability of prior year balances.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force										Date: February 2016		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0305940F / <i>Space Situation Awareness Operations</i>				Project (Number/Name) 670004 / <i>Joint Interagency Combined Space Operations Center</i>			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
670004: <i>Joint Interagency Combined Space Operations Center</i>	-	0.000	0.000	14.852	0.000	14.852	6.933	1.981	1.982	1.982	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note
This program, BA 07 PE 0305940F, project 670004, JICSpOC Infrastructure, is a new start.

A. Mission Description and Budget Item Justification

The Joint Interagency Combined Space Operations Center (JICSpOC) seeks to improve unity of effort and information sharing across the national security space community to effectively respond to potential future space threat events. The JICSpOC requires effective battle management, command and control (BMC2) to integrate and synchronize space and cyber forces and the intelligence community with efforts across all domains and to execute unity of effort through the core command and control functions of: situation monitoring, planning, decision making, space force management and space force direction. The JICSpOC will have the capability to develop, test, and integrate new space system tactics, techniques and procedures (TTPs) in support of both DoD and Intelligence Community (IC) operations. Lessons learned from JICSpOC experimentation will inform requirements development for future BMC2 architectures. This effort is a new start in FY17 in response to US Strategic Command Joint Emergent Operational Need (ST-0006).

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2015	FY 2016	FY 2017
Title: JICSpOC Infrastructure	0.000	0.000	14.852
Description: Develop and field space battle management, command and control (BMC2) infrastructure.			
FY 2015 Accomplishments: N/A			
FY 2016 Plans: N/A			
FY 2017 Plans: Design, develop and field a communications architecture and suite of decision support and analytical tools to support space BMC2.			
Accomplishments/Planned Programs Subtotals	0.000	0.000	14.852

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305940F / <i>Space Situation Awareness Operations</i>	Project (Number/Name) 670004 / <i>Joint Interagency Combined Space Operations Center</i>

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

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u> <u>Base</u>	<u>FY 2017</u> <u>OCO</u>	<u>FY 2017</u> <u>Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• N/A: N/A	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	-

Remarks

D. Acquisition Strategy

This acquisition will be executed through existing contracts (e.g. Space Security and Defense Program (SSDP) and SMC/SY) and providing funds to other AF/DoD organizations to execute on their contracts.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force												Date: February 2016			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
3600 / 7				PE 0305940F / Space Situation Awareness Operations				670004 / Joint Interagency Combined Space Operations Center							
Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
SYSTEM ENGINEERING AND INTEGRATION	Various	VARIOUS : COLORADO SPRINGS, CO	-	0.000		0.000		3.425	Oct 2016	0.000		3.425	Continuing	Continuing	-
SPACE OPERATIONAL DEVELOPMENT CENTER DESIGN AND EXPERIMENTATION	Various	VARIOUS : COLORADO SPRINGS, CO	-	0.000		0.000		5.852	Oct 2016	0.000		5.852	Continuing	Continuing	-
COMMUNICATIONS ARCHITECTURE DESIGN AND DEVELOPMENT	Various	VARIOUS : COLORADO SPRINGS, CO	-	0.000		0.000		3.575	Oct 2016	0.000		3.575	Continuing	Continuing	-
Subtotal			-	0.000		0.000		12.852		0.000		12.852	-	-	-
Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			-	-		-		-		-		-	-	-	-
Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			-	-		-		-		-		-	-	-	-
Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
A&AS	Various	VARIOUS : COLORADO SPRINGS, CO	-	0.000		0.000		0.500	Oct 2016	0.000		0.500	Continuing	Continuing	-

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305940F / <i>Space Situation Awareness Operations</i>	Project (Number/Name) 670004 / <i>Joint Interagency Combined Space Operations Center</i>

	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
JICSpOC Infrastructure Development																												
JICSpOC Experimentation																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305940F / <i>Space Situation Awareness Operations</i>	Project (Number/Name) 670004 / <i>Joint Interagency Combined Space Operations Center</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
JICSpOC Infrastructure Development	1	2017	4	2020
JICSpOC Experimentation	1	2017	4	2020

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force										Date: February 2016		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0305940F / <i>Space Situation Awareness Operations</i>				Project (Number/Name) 67A017 / <i>Sensor Service Life Extension Program</i>			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
67A017: <i>Sensor Service Life Extension Program</i>	-	11.017	20.016	20.150	0.000	20.150	15.870	4.638	3.370	3.369	0.000	78.430
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

This program, BA 07 PE 0305940F, project 67A017, Ground Radar Upgrades, is a new start.

Project Eglin SLEP completed in FY15.

A. Mission Description and Budget Item Justification

The Sensor Life Extension Programs (SLEPs) project funds efforts to upgrade, operationalize and extend the life of operational Space Situational Awareness (SSA) sensors, as needed. These SLEPs include, but are not limited to, programs which extend the serviceable life of assets and maintain critical capability by replacing aging and increasingly unsustainable components with modern and sustainable 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. The on-going Ground-based Electro Optical Deep Space Surveillance (GEODSS) Phase II is representative of sensor system upgrades 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.

The SSA Ops Demo creates a survivable architecture which provides overlapping, assured, and viable surveillance options for executing simultaneous safety of flight and event response. The demonstration develops software modifications to exploit data from legacy systems and demonstrate real-time SSA search functionality, multiple level security processing of SSA data and automated cross-sensor tipping and cueing around the globe.

Ground Based Radar Upgrades improve the sensitivity, search capabilities and CONOPS of existing SSA sensors to better support custody and fire control timelines.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2015	FY 2016	FY 2017
Title: Eglin SLEP	1.412	-	-
Description: The Eglin SLEP extends the operational life of the AN/FPS-85 Radar, located at Eglin AFB, through 2018. The program performs upgrades to the hardware and software of the radar system to maintain system performance, operability and sustainment to support USSTRATCOM's Space Surveillance Network (SSN) near earth and deep space metric tracking and space object identification (SOI) missions.			
FY 2015 Accomplishments:			

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016		
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305940F / <i>Space Situation Awareness Operations</i>	Project (Number/Name) 67A017 / <i>Sensor Service Life Extension Program</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2015	FY 2016	FY 2017
Corrected deficiencies from Development Test and Evaluation (DT&E). Conducted Force Development Evaluation (FDE) and Trial Period. Achieved Operational Acceptance and began contract closeout.				
<p>Title: SSA Ops Demo</p> <p>Description: The SSA Operational Demonstration creates a survivable architecture which provides overlapping, assured, and viable surveillance options for executing simultaneous safety of flight and event response. The demonstration develops software modifications to exploit data from legacy systems and demonstrate real-time SSA search functionality, multiple level security processing of SSA data and automated cross-sensor tipping and cueing around the globe.</p> <p>FY 2016 Plans: Develop tip and cue software upgrades and begin preparations for follow-on test/demonstration.</p> <p>FY 2017 Plans: Continue to develop tip and cue software upgrades and conduct follow-on test/demonstration.</p>		-	5.960	10.350
<p>Title: GEODSS SLEP</p> <p>Description: The GEODSS effort extends the operational life of the Ground Based Electro-Optical Deep Space Surveillance System (GEODSS). It replaces the aging Sensor Controller Group (SCG), Data Processing Group (DPG), Data Communications Group (DCG), and other unsupportable subsystems as required to maintain Space Surveillance Network (SSN) tracking capabilities for objects in deep space and geosynchronous orbits.</p> <p>FY 2015 Accomplishments: Awarded contract for GEODSS SLEP Phase II, which replaces the DPG.</p> <p>FY 2016 Plans: Conduct Preliminary Design Review (PDR) and obtain milestone B decision to enter Engineering and Manufacturing Development (EMD). Begin EMD, conduct Critical Design Review (CDR), purchase hardware, conduct software development and begin integration.</p> <p>FY 2017 Plans: Continue software development and conduct integration and development testing for GEODSS SLEP Phase II.</p>		9.605	14.056	0.000
<p>Title: Ground Radar Upgrades</p> <p>Description: This effort improves the sensitivity, search capability and CONOPS of existing SSA sensors to better support fire control timelines</p> <p>FY 2017 Plans:</p>		-	-	9.800

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305940F / <i>Space Situation Awareness Operations</i>	Project (Number/Name) 67A017 / <i>Sensor Service Life Extension Program</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
Begin prototyping L-Band solid-state transmitter, operationalize UHF transmitter/receiver upgrade and field a COTS-based L-band high voltage power supply.			
Accomplishments/Planned Programs Subtotals	11.017	20.016	20.150

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

Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• OPAF: BA03: Line Item #: 836790: <i>Space Mods Space</i>	3.124	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	5.296

Remarks
The procurement funds will be used to acquire, install and test mod kits for GEODSS sites 2 and 3.

D. Acquisition Strategy
The GEODSS SLEP was awarded as an Engineering Change Proposal on the SENSOR contract. The GEODSS SLEP uses a phased development and deployment strategy to reduce risk.

Space Situational Awareness (SSA) Ops Demo and Ground Based Radar Upgrades - Acquisition strategies include using a number of existing SY contract vehicles (e.g. SENSOR) and providing funds to other AF/DOD organizations to execute on their contracts.

E. Performance Metrics
Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305940F / <i>Space Situation Awareness Operations</i>	Project (Number/Name) 67A017 / <i>Sensor Service Life Extension Program</i>
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Eglin architecture development and life extension	C/CPAF	Exelis/TBD : Colorado Springs, CO	-	0.020	Dec 2014	0.000		0.000		0.000		0.000	0.000	0.020	-
GEODSS design, development and life extension	C/CPIF	Exelis/TBD : Colorado Springs, CO	-	8.707	Mar 2015	12.848	Feb 2016	0.000		0.000		0.000	Continuing	Continuing	-
SSA Ops Demo	C/TBD	Exelis/TBD : Colorado Springs, CO	-	0.000		3.796	May 2016	7.935	Mar 2017	0.000		7.935	Continuing	Continuing	-
SSA Ops Enterprise Systems Engineering and Integration	Various	MITRE : Various	-	0.000		0.000		0.700		0.000		0.700	Continuing	Continuing	-
Enterprise Systems Engineering and Integration	Various	MITRE : Various	-	0.336	Jan 2015	0.350	Jan 2016	0.000		0.000		0.000	Continuing	Continuing	-
L-Band Radar Upgrades	Various	MIT/LL : Various, MA	-	0.000		0.000		3.300	Oct 2016	0.000		3.300	Continuing	Continuing	-
UHF Radar Transmitter/ Receiver Engineering and Integration	C/TBD	Exelis/TBD : Colorado Springs, CO	-	0.000		0.000		6.000	Oct 2016	0.000		6.000	Continuing	Continuing	-
Subtotal			-	9.063		16.994		17.935		0.000		17.935	-	-	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305940F / Space Situation Awareness Operations	Project (Number/Name) 67A017 / Sensor Service Life Extension Program
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Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
A&AS - Various	C/Various	Various : Various	-	0.481	Jan 2015	0.821	Jan 2016	1.901	Jan 2017	0.000		1.901	Continuing	Continuing	7.788
A&AS - Tecolote	C/FP	Tecolote : Lexington, MA ColSpgs, CO	-	0.472	Nov 2014	0.272	Jan 2016	0.272	Jan 2017	0.000		0.272	Continuing	Continuing	3.561
A&AS - Jacobs	C/CPAF	Jacobs : Tullahoma, TN	-	0.926	Jan 2015	0.900	Jan 2016	0.000		0.000		0.000	Continuing	Continuing	-
Other Support	Various	AFLECMC : Lexington, MA ColSpgs, CO	-	0.075	May 2015	0.015	Jan 2016	0.042	Mar 2017	0.000		0.042	Continuing	Continuing	16.626
FFRDC	SS/FP	MIT Lincoln Laboratory : Lexington, MA	-	0.000		1.014	Dec 2015	0.000		0.000		0.000	Continuing	Continuing	-
Subtotal			-	1.954		3.022		2.215		0.000		2.215	-	-	-

			Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	11.017	20.016	20.150	0.000	20.150	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305940F / <i>Space Situation Awareness Operations</i>	Project (Number/Name) 67A017 / <i>Sensor Service Life Extension Program</i>

	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Eglin Phase I CSPU IOC	██████																											
GEODSS Phase II Development	████████████████████																											
SSA Ops Demo					██																							
Ground Radar Upgrades									██																			

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305940F / <i>Space Situation Awareness Operations</i>	Project (Number/Name) 67A017 / <i>Sensor Service Life Extension Program</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Eglin Phase I CSPU IOC	1	2015	2	2015
GEODSS Phase II Development	2	2015	2	2018
SSA Ops Demo	2	2016	4	2021
Ground Radar Upgrades	1	2017	4	2019

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0306250F / <i>Cyber Operations Technology Development</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	-	7.768	11.980	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
676002: <i>Cyber Systems Modernization</i>	-	7.768	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
676008: <i>IRR FLARE TESTING</i>	-	0.000	11.980	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

Note
 In FY2016, PE 0306250F, Cyber Operations Technology Development, Project 676002, Cyber Systems Modernization, efforts were transferred to PE 0306250F, Cyber Operations Technology Development, Project 646008, US Cyber Command Technology Development, to align all USCYBERCOM investment funding into one Program Element and WSC.

A. Mission Description and Budget Item Justification

No mission description provided.

B. Program Change Summary (\$ in Millions)

	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>
Previous President's Budget	4.938	0.000	0.000	0.000	0.000
Current President's Budget	7.768	11.980	0.000	0.000	0.000
Total Adjustments	2.830	11.980	0.000	0.000	0.000
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	11.980			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	3.000	0.000			
• SBIR/STTR Transfer	-0.170	0.000			
• Other Adjustments	0.000	0.000	0.000	0.000	0.000

Congressional Add Details (\$ in Millions, and Includes General Reductions)

Project: 676008: *IRR FLARE TESTING*

Congressional Add: *Cyber Tech Development*

Congressional Add Subtotals for Project: 676008

Congressional Add Totals for all Projects

	FY 2015	FY 2016
	-	11.980
	-	11.980
	-	11.980

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force										Date: February 2016		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0306250F / <i>Cyber Operations Technology Development</i>			Project (Number/Name) 676002 / <i>Cyber Systems Modernization</i>				
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
676002: <i>Cyber Systems Modernization</i>	-	7.768	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

US Cyber Command (USCYBERCOM) plans, coordinates, integrates, synchronizes, and conducts activities to: direct the operations and defense of specified Department of Defense information networks; and prepare to, and when directed, conduct full-spectrum military cyberspace operations in order to enable actions in all domains, ensure US/Allied freedom of action in cyberspace and deny the same to our adversaries. Emphasis is on providing component and subsystem maturity prior to integration in major and complex systems and may involve risk reduction initiatives.

USCYBERCOM, in conjunction with the Services and National Agencies, will develop and expand infrastructure architectures to support Cyber Mission Forces.

This program is in Budget Activity 7, Operational System Development, because this budget activity funds various development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Defend the Nation Capabilities	7.768	0.000	0.000	0.000	0.000
Description: Supports the development of a diverse cyber capability portfolio to enable SEE, BLOCK, and MANEUVER efforts in order to defeat a wide variety of cyber attacks. Efforts include research, integration, analysis, access development, training, testing, and assessments for offensive, and defensive cyber capabilities.					
FY 2015 Accomplishments:					
- Supported development, prototyping, and testing of tools for Defend the Nation cyber operations					
- Supported advanced transition and technology assessment of joint cyber operations infrastructure technologies					
- Researched supporting secure technology to protect critical infrastructure, development of the process and sustainment structure for Cyber Mission Force teams, and technical and subject matter expertise for systems engineering and technical assurance					
FY 2016 Plans:					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0306250F / <i>Cyber Operations Technology Development</i>	Project (Number/Name) 676002 / <i>Cyber Systems Modernization</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
N/A					
FY 2017 Base Plans:					
N/A					
FY 2017 OCO Plans:					
N/A					
Accomplishments/Planned Programs Subtotals	7.768	0.000	0.000	0.000	0.000

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

N/A

Remarks

D. Acquisition Strategy

Contracts are awarded under full and open competition whenever possible. Variations of both Fixed Price (FP) and Cost Plus (CP) contracting vehicles will be used and managed by various Service Components contracting offices COCOM contracting offices and NSA.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0306250F / <i>Cyber Operations Technology Development</i>	Project (Number/Name) 676002 / <i>Cyber Systems Modernization</i>
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Defend the Nation Capabilities	Various	Various : Various	-	7.768	Dec 2014	0.000		0.000		0.000		0.000	Continuing	Continuing	-
Subtotal			-	7.768		0.000		0.000		0.000		0.000	-	-	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

			Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	7.768	0.000	0.000	0.000	0.000	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0306250F / <i>Cyber Operations Technology Development</i>	Project (Number/Name) 676002 / <i>Cyber Systems Modernization</i>

	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Defend the Nation Capabilities	██████████																											
Call for Proposals	████																											

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0306250F / <i>Cyber Operations Technology Development</i>	Project (Number/Name) 676002 / <i>Cyber Systems Modernization</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Defend the Nation Capabilities	1	2015	4	2015
Call for Proposals	1	2015	1	2015

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0306250F / <i>Cyber Operations Technology Development</i>	Project (Number/Name) 676008 / <i>IRR FLARE TESTING</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
676008: <i>IRR FLARE TESTING</i>	-	0.000	11.980	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Increase US Cyber Command cyber operations tech development.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2015	FY 2016
Congressional Add: Cyber Tech Development	-	11.980
FY 2016 Plans: Increase US Cyber Command cyber operations tech development.		
Congressional Adds Subtotals	-	11.980

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

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• N/A: N/A	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	-

Remarks

Beginning in FY16 all RDT&E funding transferred from PE 36250F, BA07, WSC 676002 to PE 36250F, BA04, WSC 646008.

D. Acquisition Strategy

N/A

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0306250F / <i>Cyber Operations Technology Development</i>	Project (Number/Name) 676008 / <i>IRR FLARE TESTING</i>
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Cyber tech development	Various	TBD : TBD	-	0.000		11.980		0.000		0.000		0.000	Continuing	Continuing	-
Subtotal			-	0.000		11.980		0.000		0.000		0.000	-	-	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

			Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	0.000	11.980	0.000	0.000	0.000	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0306250F / <i>Cyber Operations Technology Development</i>	Project (Number/Name) 676008 / <i>IRR FLARE TESTING</i>

FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

Cyber Tech Development	[REDACTED]																											
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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0306250F / <i>Cyber Operations Technology Development</i>	Project (Number/Name) 676008 / <i>IRR FLARE TESTING</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Cyber Tech Development	2	2016	4	2016

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0308699F / <i>Shared Early Warning (SEW)</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	-	1.119	0.849	6.366	0.000	6.366	1.369	1.250	1.273	1.296	Continuing	Continuing
674838: <i>Shared Early Warning System</i>	-	1.119	0.849	6.366	0.000	6.366	1.369	1.250	1.273	1.296	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note
 This program, BA 07 PE 0308699F, project 674838, North Warning System (NWS), is a new start.

A. Mission Description and Budget Item Justification

The Shared Early Warning System (SEWS) is the result of Presidential foreign policy initiatives which began in 1996. The SEWS continues to provide Theater Combatant Commanders and foreign nation customers direct operational benefit by improving the architectural design and equipment thereby providing enhanced mission capabilities (i.e., expanded coverage, emerging capability integration, etc). Foreign customer arrangements are negotiated with individual countries on a bilateral basis to provide selected region-specific missile warning information. SEWS Integration and Test facility is kept current by enhancing systems to improve analysis of real world events. To enhance mission capability the SEWS program tests message format updates, cross domain solution updates, mandatory crypto upgrades, SEWS integration with other warning systems, and the transition to "coalition-based" warning.

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

The North Warning System (NWS) is composed of 1970s era radar systems. The existing radar technology is quickly approaching obsolescence with regards to future threats.

This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0308699F / <i>Shared Early Warning (SEW)</i>
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B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	1.157	0.853	1.429	0.000	1.429
Current President's Budget	1.119	0.849	6.366	0.000	6.366
Total Adjustments	-0.038	-0.004	4.937	0.000	4.937
• Congressional General Reductions	0.000	-0.004			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-0.038	0.000			
• Other Adjustments	0.000	0.000	4.937	0.000	4.937

Change Summary Explanation

FY17: Funding increased to conduct an analysis of alternatives for potential replacement of the North Warning System (NWS).

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
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Title: Shared Early Warning System (SEWS)	1.119	0.849	1.415
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Description: Development of SEWS common architecture and SEWS initiatives as identified by theater commanders.

FY 2015 Accomplishments:

- Investigated solutions for emerging Combatant Command (CCMD) and Joint Staff validated requirements and needed Shared Early Warning (SEW) system enhancements.
- Focused on Radiant Mercury (RM) Common Message Format (CMF) rule development, new CMF data parsing capabilities, and transition of receiver and data recording equipment to CMF formats.
- Developed Cross Domain Solution (CDS) CMF data sharing improvements.
- Tested RM 5.1 performance with CMF data received from the new Common Interactive Broadcast (CIB).
- Developed RM ruleset and tested a SEW Joint Range Extension Application Protocol B (JREAP-B) data interface to eliminate legacy formats.
- Completed the Force Protection Tiered Notification System (FPTNS) Phase 2, One-to-Many rule set development, accreditation and testing for United States Central Command (USCENTCOM).
- CDS was fielded, accredited, tested and implemented with one of the USCENTCOM partners.
- Tested Tactical Receive Suite (TRS) Radios improvements.
- Conducted testing of TRS Suite 4.0 CMF data filtering capability and provided developer with software problem reports.
- Conducted testing of TRS Dashboard 5.0 beta software implementing a new CMF data record and playback capability.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0308699F / <i>Shared Early Warning (SEW)</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
<ul style="list-style-type: none"> - Developed SEW-Radar (SEW-R) data correlation solutions. -- Developed enhanced SEW architecture to facilitate the combination and correlation of infrared and radar missile track for a single integrated missile picture. -- Integrated United States European Command (USEUCOM) partner SEW-R data into the Centralized Distribution Facility (CDF) and developed recording and playback capability to test and evaluate performance of GCCS-J Kinematic Correlation capability with real Link-16 radar tracks. - Planned Accuracy Improvements research, development, integration and testing. -- Coordinated efforts with United States Strategic Command (USSTRATCOM) and Theater Event System (TES) program office to plan development of enhancements to improve TES/SEW performance for short and dim missile events. <p>FY 2016 Plans:</p> <ul style="list-style-type: none"> - Investigating solutions for emerging CCMD and Joint Staff validated requirements and needed SEW system enhancements. - Developing CDS CMF data sharing improvements. -- Focusing efforts on CMF translation, CMF implementation, JREAP-B interface standards, Real Time Rule-Set Modification, and Message De-duplication. - Developing and integrating SEW-R data correlation solutions. -- Enhancing SEW architecture to facilitate the combination and correlation of infrared and radar missile track data for a single integrated missile picture. -- Planning testing that will demonstrate increased performance. - Developing Accuracy Improvements. -- Analyzing alternative solutions to exploit new sensor data and new processing algorithms. - Beginning Prototype Network Investigation. -- Planning and beginning development of end-to-end SEW architecture with CMF input data from the receivers to ensure proper operation/compatibility of improved rulesets, applications, and interoperability. - Beginning SEWS Mobile System Development/Integration/Test. -- Planning and beginning development of improved and enhanced mobile SEWS capability for use with partner deployable active missile defense systems. <p>FY 2017 Plans:</p> <ul style="list-style-type: none"> - Will investigate solutions for emerging CCMD and Joint Staff validated requirements and needed SEW system enhancements. - Will implement CDS CMF data sharing improvements. -- Implement SEW CMF RM 6.0 rulesets, conduct tests and verify proper operation. -- Develop enhancements to provide new releasable CMF fields to partners. - Will test and evaluate SEW-R data correlation solutions. 			

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0308699F / <i>Shared Early Warning (SEW)</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
-- Demonstrate an improved infrared/radar integrated missile picture based on SEW GCCS-J correlation of SEW-Space and SEW-R data, featuring association of multiple tracked objects to a single event and display of the weapon track with a correct missile count and improved impact prediction. - Will continue development and plan integration of Accuracy Improvements. -- Implement most promising alternative solutions to exploit new sensor data and new processing algorithms. - Will integrate and test Prototype Network Investigation enhancements. -- Test and evaluate end-to-end SEW architecture with CMF input data from the receivers to ensure proper operation/compatibility of improved rulesets, applications, and interoperability. - Will continue development of SEWS Mobile System. -- Continue development of improved and enhanced mobile SEWS capability for use with partner deployable active missile defense systems. - Will begin FPTNS Phase 3 Design/Development and plan testing. -- Develop and plan to test FPTNS Phase 3 to provide automatic data transfer to eliminate operator entry errors and to significantly improve the delivery time of secondary missile warning to SEW partner command centers and lower tier sites. - Will conduct Agile Client Testing. -- Evaluate GCCS-J 3D Agile Client for use as the SEW partner display and verify all required capabilities are functioning properly.			
Title: North Warning System (NWS) Description: Conduct an analysis of alternatives for potential replacement of the NWS. FY 2017 Plans: - Conduct analysis of alternatives.	-	-	4.951
Accomplishments/Planned Programs Subtotals	1.119	0.849	6.366

D. Other Program Funding Summary (\$ in Millions)										
Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete Total Cost
• OPAF: BA07: Line Item # 838010: <i>Comm Elect Mods</i>	0.329	0.220	0.407	0.000	0.407	0.388	0.348	0.354	0.360	Continuing Continuing

Remarks

E. Acquisition Strategy
 The acquisition strategy is to build on existing capabilities using evolutionary acquisition to modernize and sustain SEWS. The program office serves as the SEW system integrator, relying on a Prime Contractor for Logistics, Operations, and Sustainment support. The projects described will be accomplished on the existing SEWS

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0308699F / <i>Shared Early Warning (SEW)</i>
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Single-Award Indefinite Delivery Indefinite Quantity (SA IDIQ) contract. This contract was re-competed through full and open competition in 2012. The current contract has a PoP through 30 Sep 2017. Additionally, some SEWS requirements are satisfied through Military Interdepartmental Purchase Requests to external programs of record.

The analysis of alternatives for potential replacement of the NWS will be accomplished using a to be determined mix of organic, federally funded research and development center, and advisory and assistance support contractor, efforts.

F. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0308699F / Shared Early Warning (SEW)	Project (Number/Name) 674838 / Shared Early Warning System
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
System Development	C/CPIF	Lockheed Martin : Colorado Springs, CO	-	0.596	Oct 2014	0.532	Oct 2015	0.895	Oct 2016	0.000		0.895	Continuing	Continuing	-
Integration and Modernization	MIPR	US Navy : San Diego, CA	-	0.254	Mar 2015	0.155	Mar 2016	0.195	Mar 2017	0.000		0.195	Continuing	Continuing	-
Additional Product Development	MIPR	Various : Colorado Springs, CO	-	0.072	Sep 2015	0.081	Sep 2016	0.082	Sep 2017	0.000		0.082	Continuing	Continuing	-
Subtotal			-	0.922		0.768		1.172		0.000		1.172	-	-	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Analysis of Alternatives for potential replacement of NWS	TBD	Various : Colorado Springs, CO	-	0.000		0.000		4.951	Mar 2017	0.000		4.951	0.000	4.951	4.951
Subtotal			-	0.000		0.000		4.951		0.000		4.951	0.000	4.951	4.951

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Systems Engineering	SS/CPFF	MITRE : Colorado Springs, CO	-	0.160	Nov 2014	0.000		0.160	Nov 2016	0.000		0.160	Continuing	Continuing	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force													Date: February 2016		
Appropriation/Budget Activity 3600 / 7				R-1 Program Element (Number/Name) PE 0308699F / Shared Early Warning (SEW)						Project (Number/Name) 674838 / Shared Early Warning System					
Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Administration	C/Various	Various : Colorado Springs, CO	-	0.037	May 2015	0.081	Nov 2015	0.083	Nov 2016	0.000		0.083	Continuing	Continuing	-
Subtotal			-	0.197		0.081		0.243		0.000		0.243	-	-	-
			Prior Years	FY 2015	FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract	
Project Cost Totals			-	1.119	0.849		6.366		0.000		6.366	-	-	-	

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0308699F / Shared Early Warning (SEW)	Project (Number/Name) 674838 / Shared Early Warning System

	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Investigation of solutions for emerging Combatant Command (CCMD) and Joint Staff validated requirements and needed Shared Early Warning (SEW) system enhancements																												
Cross Domain Solution (CDS) Common Message Format (CMF) Data Sharing Improvements																												
Force Protection Tiered Notification System (FPTNS) Phase 2 Integration/Testing																												
Tactical Receive Suite (TRS) Radios Improvements Testing																												
SEW-Radar (SEW-R) Data Correlation Solutions Development/Integration/Test																												
Accuracy Improvements Development/Test																												
Prototype Network Investigation																												
Shared Early Warning System (SEWS) Mobile System Development/Integration/Test																												
FPTNS Phase 3 Design/Development/Integration/Testing																												
Agile Client Testing																												
Analysis of Alternatives for potential replacement of North Warning System (NWS)																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0308699F / Shared Early Warning (SEW)	Project (Number/Name) 674838 / Shared Early Warning System

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Investigation of solutions for emerging Combatant Command (CCMD) and Joint Staff validated requirements and needed Shared Early Warning (SEW) system enhancements	1	2015	4	2018
Cross Domain Solution (CDS) Common Message Format (CMF) Data Sharing Improvements	1	2015	4	2018
Force Protection Tiered Notification System (FPTNS) Phase 2 Integration/Testing	1	2015	4	2015
Tactical Receive Suite (TRS) Radios Improvements Testing	1	2015	4	2015
SEW-Radar (SEW-R) Data Correlation Solutions Development/Integration/Test	3	2015	4	2017
Accuracy Improvements Development/Test	4	2015	2	2019
Prototype Network Investigation	2	2016	3	2017
Shared Early Warning System (SEWS) Mobile System Development/Integration/Test	3	2016	1	2019
FPTNS Phase 3 Design/Development/Integration/Testing	3	2017	1	2018
Agile Client Testing	3	2017	2	2018
Analysis of Alternatives for potential replacement of North Warning System (NWS)	2	2017	1	2018

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0401115F / C-130 Airlift Squadron
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	0.000	0.000	33.962	15.599	0.000	15.599	90.697	191.779	137.512	85.000	Continuing	Continuing
675248: <i>C-130H Avionics Modernization Program (AMP) Increment 1</i>	0.000	0.000	33.962	8.421	0.000	8.421	15.697	13.104	7.212	0.000	0.000	78.396
675250: <i>C-130H Avionics Modernization Program (AMP) Increment 2</i>	0.000	0.000	0.000	7.178	0.000	7.178	75.000	178.675	130.300	85.000	Continuing	Continuing

Note

This program, BA 07 PE 0401115F, project 675250, C-130H Avionics Modernization Program (AMP) Increment 2, is a new start.

Project 675248 was renamed from "C-130H Viability and Airspace Access Program (VAAP) Increment 1" to "C-130H Avionics Modernization Program (AMP) Increment 1" starting in FY17.

A. Mission Description and Budget Item Justification

The FY 2017 funding was reduced by \$50.484M to account for the availability of prior year execution balances.

The C-130H is a medium sized tactical transport aircraft providing multi-purpose theater support throughout the globe. The C-130H fleet supports several diverse Air Force roles, including but not limited to tactical and inter-theater airlift and airdrop support, Arctic resupply, special operations support, aeromedical evacuation, aerial spraying, firefighting duties, and natural disaster and humanitarian relief missions.

C-130H AMP Increment 1 addresses modifications to meet airspace compliance mandates and safety requirements. RDT&E efforts will cover design, integration, developmental test, Type 1 training and C-130H aircrew and maintenance training systems and courseware development efforts.

C-130H AMP Increment 2 includes digital avionics upgrades (e.g. Flight Management System, improved navigation), cockpit modernization (e.g. glass/engine flight displays) and resolves select obsolescence and Diminishing Manufacturing Source (DMS) issues. RDT&E efforts will cover design, integration, developmental test, Type 1 training and C-130H aircrew and maintenance training systems and courseware development efforts.

This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full-rate production and anticipate production funding in the current or subsequent fiscal year.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0401115F / C-130 Airlift Squadron
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B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	0.000	33.962	58.905	0.000	58.905
Current President's Budget	0.000	33.962	15.599	0.000	15.599
Total Adjustments	0.000	0.000	-43.306	0.000	-43.306
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	-43.306	0.000	-43.306

Change Summary Explanation

FY17 includes a reduction of \$50.484M from "C-130H AMP Increment 1" to account for the availability of prior year execution balances.

Additionally, FY17 includes \$7.178M for "C-130H Avionics Modernization Program (AMP) Increment 2" new-start.

These two actions resulted in a total reduction of \$43.306M in FY17.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force										Date: February 2016		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0401115F / C-130 Airlift Squadron				Project (Number/Name) 675248 / C-130H Avionics Modernization Program (AMP) Increment 1			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
675248: C-130H Avionics Modernization Program (AMP) Increment 1	0.000	0.000	33.962	8.421	0.000	8.421	15.697	13.104	7.212	0.000	0.000	78.396
Quantity of RDT&E Articles	-	-	-	-	-	-	4	-	-	-	-	

Note

Project 675248 was renamed from "C-130H Viability and Airspace Access Program (VAAP) Increment 1" to "C-130H Avionics Modernization Program (AMP) Increment 1" starting in FY17.

A. Mission Description and Budget Item Justification

The C-130H AMP Increment 1 program performs modifications to meet airspace compliance and safety mandates; the mod includes automatic dependent surveillance-broadcast (ADS-B) Out, enhanced Mode S, 8.33 kHz radios, and cockpit voice recorder/digital flight data recorder (CVR/DFDR).

RDT&E efforts will cover design, integration, developmental test, Type 1 training and C-130H aircrew and maintenance training systems and courseware development efforts (including MODE 5 effort for the trainers).

The C-130H AMP Increment 1 program modifies 172 aircraft (166x C-130Hs and 6x LC-130Hs) consisting of H3s, H2.5s, H2s and H1s; and includes 127 Air National Guard aircraft, and 45 Air Force Reserve aircraft. The modification effort will have up to 4 prototype aircraft representative of variations in the mission designs and required for accomplishment of the C-130H AMP Increment 1 Engineering and Manufacturing Development (EMD) phase. The remaining aircraft will be modified in the production phase.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: C-130H AMP Increment 1	0.000	33.962	8.421	0.000	8.421
Description: Refined and completed the requirements definition phase of the program, followed by integration planning, and the Engineering and Manufacturing Development (EMD) phase activities.					
FY 2015 Accomplishments: N/A					
FY 2016 Plans:					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0401115F / C-130 Airlift Squadron	Project (Number/Name) 675248 / C-130H Avionics Modernization Program (AMP) Increment 1

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Documentation development, Request for Proposal (RFP) development and release, source selection and ramp up of Engineering and Manufacturing Development (EMD) phase activities. FY 2017 Base Plans: Continuation of EMD including Milestone B, Contract Award, Preliminary and Critical Design Reviews. FY 2017 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	0.000	33.962	8.421	0.000	8.421

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• APAF: BA05: Line Item # C13000: C-130H Avionics Modernization Program (AMP) Increment 1	0.000	70.000	0.000	0.000	0.000	56.968	59.764	21.401	10.516	0.000	218.649

Remarks
C-130H AMP Increment 1 Procurement funding begins in FY18; however, the program also received a congressional add of \$70M APAF in FY16.

Additionally, the original C-130 AMP (mod # 8517) received a congressional add of FY15 \$35.8M APAF in FY15; based on the FY15 NDAA language, the AF is able to execute a portion of this funding for the C-130H AMP Increment 1 program.

D. Acquisition Strategy
C-130H AMP Increment 1 acquisition strategy (30 Sept 2015) is to conduct a full and open competitive source selection for ADS-B Out and Enhanced Mode S followed by a Federal Acquisition Regulation (FAR) Part 15 contract award. Current efforts are primarily defining the program requirements and pre-contract efforts in preparation for the Engineering and Manufacturing Development (EMD) source selection. The current schedule reflects EMD contract to be awarded in 2nd quarter FY17.

Based on congressional approval, the AF started C-130H AMP Increment 1 in FY15, with the following FY15 activities: Market research, acquisition strategy planning, and documentation development.

E. Performance Metrics
Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0401115F / C-130 Airlift Squadron	Project (Number/Name) 675248 / C-130H Avionics Modernization Program (AMP) Increment 1
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
C-130H AMP Increment 1 EMD Contract	C/Various	TBD : TBD	0.000	0.000		25.162	Mar 2017	0.000		0.000		0.000	Continuing	Continuing	40.375
C-130H AMP Increment 1 Trainers/Training	C/TBD	TBD : TBD	0.000	0.000		0.000		3.421	Mar 2017	0.000		3.421	Continuing	Continuing	16.521
Government Furnished Property	MIPR	TBD : TBD	0.000	0.000		0.800	Mar 2017	0.000		0.000		0.000	0.000	0.800	0.800
Subtotal			0.000	0.000		25.962		3.421		0.000		3.421	-	-	57.696

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
C-130H AMP Increment 1 Development Flight Test	MIPR	TBD : TBD	0.000	0.000		0.000		0.000		0.000		0.000	Continuing	Continuing	2.700
Subtotal			0.000	0.000		0.000		0.000		0.000		0.000	-	-	2.700

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
C-130H AMP Increment 1 PMA - contractor Services	Various	Not Specified : TBD	0.000	0.000		6.000	Feb 2016	4.000	Feb 2017	0.000		4.000	Continuing	Continuing	14.000
C-130H AMP Increment 1 PMA - Government Cost	Various	Not Specified : TBD	0.000	0.000		2.000	Feb 2016	1.000	Feb 2017	0.000		1.000	Continuing	Continuing	4.000
Subtotal			0.000	0.000		8.000		5.000		0.000		5.000	-	-	18.000

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force					Date: February 2016			
Appropriation/Budget Activity 3600 / 7		R-1 Program Element (Number/Name) PE 0401115F / C-130 Airlift Squadron			Project (Number/Name) 675248 / C-130H Avionics Modernization Program (AMP) Increment 1			

	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.000	33.962	8.421	0.000	8.421	-	-	78.396

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0401115F / C-130 Airlift Squadron	Project (Number/Name) 675248 / C-130H Avionics Modernization Program (AMP) Increment 1

	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Milestone B									■																			
EMD Contract Awards									■																			
Design/Integration									■	■	■	■																
Preliminary Design Review										■																		
Critical Design Review											■																	
Developmental Testing													■	■	■	■												
Functional Configuration Audit														■														
Milestone C																									■			
Force Development Evaluation (FDE)														■	■	■												
Physical Configuration Audit (PCA)															■													

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0401115F / C-130 Airlift Squadron	Project (Number/Name) 675248 / C-130H Avionics Modernization Program (AMP) Increment 1

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Milestone B	2	2017	2	2017
EMD Contract Awards	2	2017	2	2017
Design/Integration	2	2017	2	2018
Preliminary Design Review	3	2017	3	2017
Critical Design Review	4	2017	4	2017
Developmental Testing	2	2018	4	2018
Functional Configuration Audit	3	2018	3	2018
Milestone C	4	2018	4	2018
Force Development Evaluation (FDE)	3	2018	4	2018
Physical Configuration Audit (PCA)	4	2018	4	2018

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force										Date: February 2016		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0401115F / C-130 Airlift Squadron				Project (Number/Name) 675250 / C-130H Avionics Modernization Program (AMP) Increment 2			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
675250: C-130H Avionics Modernization Program (AMP) Increment 2	0.000	0.000	0.000	7.178	0.000	7.178	75.000	178.675	130.300	85.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	2	1	1		

Note

This program, BA 07 PE 0401115F, project 675250, C-130H Avionics Modernization Program (AMP) Increment 2, is a new start.

A. Mission Description and Budget Item Justification

The C-130H AMP Increment 2 upgrades the C-130H fleet with comprehensive avionics and cockpit modernization which replaces aging unreliable equipment and adds combat capability enhancements. It also addresses select obsolescence and diminishing manufacturing sources (DMS) issues.

RDT&E efforts include design, integration, developmental test, Type 1 training, and C-130H aircrew and maintenance training systems and courseware development efforts.

The C-130H AMP Increment 2 program modifies 172 aircraft (166x C-130Hs and 6x LC-130Hs) consisting of H3s, H2.5s, H2s and H1s; and includes 127 Air National Guard aircraft, and 45 Air Force Reserve aircraft. The modification effort will have 4 prototype aircraft required for accomplishment of the Engineering and Manufacturing Development (EMD) phase, with the remaining 168 being production aircraft. The prototype aircraft represent each type of C-130H configuration listed above.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: C-130H Avionics Modernization Program (AMP) Increment 2	0.000	0.000	7.178	0.000	7.178
Description: Refine and complete the requirements definition phase of the program, followed by integration planning and the Engineering and Manufacturing Development (EMD) phase activities.					
FY 2015 Accomplishments: N/A					
FY 2016 Plans: N/A					
FY 2017 Base Plans:					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0401115F / C-130 Airlift Squadron	Project (Number/Name) 675250 / C-130H Avionics Modernization Program (AMP) Increment 2

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
EMD activities including market research, documentation development, Request for Proposal (RFP) issuance, Source Selection and Milestone B preparation.					
FY 2017 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	0.000	0.000	7.178	0.000	7.178

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• APAF: BA05: Line Item # C13000: C-130H Avionics Modernization Program (AMP) Increment 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	117.613	197.750	Continuing	Continuing

Remarks
The C-130H Avionics Modernization Program (AMP) Increment 2 procurement funding begins in FY20.

D. Acquisition Strategy
C-130H AMP Increment 2 acquisition strategy intends to conduct a full and open competitive source selection followed by contract award. Current efforts are primarily defining the program requirements and pre-contract efforts in preparation for the Engineering and Manufacturing Development (EMD) source selection. The current schedule reflects EMD contract to be awarded in 2nd quarter FY18.

E. Performance Metrics
Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0401115F / C-130 Airlift Squadron	Project (Number/Name) 675250 / C-130H Avionics Modernization Program (AMP) Increment 2
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
C-130H AMP Increment 2 EMD Contract	C/TBD	TBD : TBD, GA	0.000	0.000		0.000		0.000		0.000		0.000	Continuing	Continuing	460.256
Subtotal			0.000	0.000		0.000		0.000		0.000		0.000	-	-	460.256

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
C-130H AMP Increment 2 Development Testing	C/TBD	TBD : TBD, GA	0.000	0.000		0.000		0.000		0.000		0.000	Continuing	Continuing	27.600
Subtotal			0.000	0.000		0.000		0.000		0.000		0.000	-	-	27.600

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
C-130H AMP Increment 2 PMA Contractor Services	Various	Not Specified : TBD, OH	0.000	0.000		0.000		7.178	Feb 2017	0.000		7.178	Continuing	Continuing	28.297
Subtotal			0.000	0.000		0.000		7.178		0.000		7.178	-	-	28.297

			Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			0.000	0.000	0.000	7.178	0.000	7.178	-	-	516.153

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0401115F / C-130 Airlift Squadron	Project (Number/Name) 675250 / C-130H Avionics Modernization Program (AMP) Increment 2
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	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
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Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0401115F / C-130 Airlift Squadron	Project (Number/Name) 675250 / C-130H Avionics Modernization Program (AMP) Increment 2

	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Milestone B																												
EMD Contract Award																												
Design/Integration																												
Preliminary Design Review																												
Critical Design Review																												
Design/Integration Training Development																												
Development Testing																												
Functional Configuration Audit																												
Milestone C																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0401115F / C-130 Airlift Squadron	Project (Number/Name) 675250 / C-130H Avionics Modernization Program (AMP) Increment 2

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Milestone B	1	2018	1	2018
EMD Contract Award	2	2018	2	2018
Design/Integration	2	2018	4	2020
Preliminary Design Review	4	2018	4	2018
Critical Design Review	2	2019	2	2019
Design/Integration Training Development	2	2018	4	2020
Development Testing	4	2020	2	2021
Functional Configuration Audit	3	2021	3	2021
Milestone C	3	2021	3	2021

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0401119F / <i>C-5 Airlift Squadrons (IF)</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	-	31.772	22.864	66.146	0.000	66.146	46.692	5.795	0.000	0.000	0.000	173.269
675358: <i>C-5 Mission Computer-Mission Sys Equip-Weather Radar</i>	-	31.772	7.403	11.837	0.000	11.837	0.000	0.000	0.000	0.000	0.000	51.012
675359: <i>CNS/ATM Mode5 Swift Broadband BLOS/LOS Radio</i>	-	0.000	15.461	54.309	0.000	54.309	46.692	5.795	0.000	0.000	0.000	122.257

A. Mission Description and Budget Item Justification

"The FY 2017 funding request was reduced by \$10 million to account for availability of prior execution balances."

675358: The C-5 core mission computer (CMC)/Weather Radar modification project is a comprehensive sustainment modification to mitigate the obsolescence of the current CMC and weather radar. This effort centers on modifying the current mission computer by replacing core processing module (CPM) cards to obtain sufficient capacity to support integration of new system capabilities with margin for growth by upgrading module cards and correcting any mission essential deficiencies identified during development. Also, the effort includes replacement of the weather radar with a commercial off-the-shelf color weather radar. The modified mission computer will allow for current and future throughput growth of additional processing requirements to meet calendar year 2020 communication, navigation, surveillance/air traffic management mandates.

This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

675359: The C-5 communication, navigation, surveillance/air traffic management (CNS/ATM) modification project is a comprehensive effort to ensure appropriate system design architectures are developed and equipment is installed on the C-5 to allow aircraft operation in accordance with civil airspace access mandates for both the US National Airspace System (NAS) and international civil airspace. Additionally, the program will add equipment to meet outstanding National Security Agency mandates for encryption of voice communications. The C-5 CNS/ATM program ensures systems standardization and interoperability with other DoD systems to the maximum extent possible and directly supports airworthiness certification of the C-5. CNS/ATM requirements include, but are not limited to, capabilities such as automatic dependent surveillance-broadcast out (ADS-B Out), identification friend or foe (IFF) Mode 5, satellite communication equipment replacement, and beyond line-of-sight voice radio replacement. It is anticipated equipment will be predominately commercial off-the-shelf or non-developmental items.

ADS-B Out is a next generation surveillance technology that transitions key aspects of Air Traffic Control from terrestrial based technologies to satellite enabled technologies to provide controllers a more accurate picture of aircraft positioning.

Funding may be used to address the DMS issues.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0401119F / <i>C-5 Airlift Squadrons (IF)</i>
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This program is a Budget Activity 7, Operations Systems Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current and subsequent fiscal years.

This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	38.773	42.864	76.805	0.000	76.805
Current President's Budget	31.772	22.864	66.146	0.000	66.146
Total Adjustments	-7.001	-20.000	-10.659	0.000	-10.659
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	-20.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	-7.001	0.000	-10.659	0.000	-10.659

Change Summary Explanation

The FY2015 funding was reduced by \$7 million for higher AF priorities.

The FY2016 funding was reduced by \$20 million due to a Congressionally directed reduction for forward financing.

The FY 2017 funding request was reduced by \$10 million to account for availability of prior execution balances." The remaining \$0.659M was reduced due to deflation.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force										Date: February 2016		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0401119F / C-5 Airlift Squadrons (IF)				Project (Number/Name) 675358 / C-5 Mission Computer-Mission Sys Equip-Weather Radar			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
675358: C-5 Mission Computer-Mission Sys Equip-Weather Radar	-	31.772	7.403	11.837	0.000	11.837	0.000	0.000	0.000	0.000	0.000	51.012
Quantity of RDT&E Articles	-	-	2	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The C-5 core mission computer (CMC)/weather radar (WxRdr) program is a comprehensive sustainment modification to mitigate the obsolescence of the current CMC and WxRdr. This effort centers around modifying the current mission computer to obtain sufficient capacity/capability to support integration of new system capabilities with margin for growth by upgrading module cards and correcting any mission essential deficiencies identified during development. Also, the effort includes replacement of the weather radar with a commercial off-the-shelf weather radar. Mission systems equipment includes, but is not limited to, a redesign of the C-5 lavatory system. Examples of other mission systems equipment include troop seats, crew entry door and ladder, and interior trim.

The current C-5 CMC has reached maximum capacity and cannot integrate required aircraft systems and capabilities to include the weather radar; flight management system (FMS); and communication, navigation, surveillance (CNS)/air traffic management (ATM) requirements. These requirements include capabilities such as the automatic dependent surveillance-broadcast out (ADS-B Out), and identification, friend or foe (IFF) mode 5. The new CMC will allow for current and future throughput growth of additional processing requirements to meet calendar year 2020 CNS/ATM mandates.

The modification helps to maintain aircraft availability as the new weather radar replaces the current APS-133 weather radar system, which is experiencing severe diminishing manufacturing source (DMS) issues. Failure to upgrade the CMC to support calendar year 2020 CNS/ATM mandates and a new weather radar will create a significant operational impact. DMS issues will be resolved to support continued production and installation of requirements for the C-5 fleet. Further, DMS issues will be resolved to support continued operations through studies, bridge buys, life-of-type buys, development, and redesign efforts.

The C-5 mission systems equipment (MSE) program updates the lavatory system. The current lavatory system suffers inoperability and leakage of liquid sodium hypochlorite causing severe corrosion and burnt wires in the landing gear control panels. A redesign of the MSE will increase safety, mitigate risk, and reduce man-hours required to repair extensive damage.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2015	FY 2016	FY 2017
Title: Mission Computer and Weather Radar Program	31.772	7.403	11.837
Description: Core mission computer modification and weather radar replacement will enable the C-5 to achieve wartime mission requirements by maintaining fleet availability (mission capable rate) and program management administration (PMA).			
FY 2015 Accomplishments:			

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0401119F / C-5 Airlift Squadrons (IF)	Project (Number/Name) 675358 / C-5 Mission Computer-Mission Sys Equip-Weather Radar

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
Supported development and integration of hardware and software, and verified the traceability documentation of requirements to design was mature and complete through the critical design review process. Ensured test cases were prepared and ready to support the start of qualification testing.			
FY 2016 Plans: Supporting completion of formal qualification testing, installation and functional check of hardware, design and development of aircrew and maintenance training system modification, developmental test and evaluation, and operational test completing in FY17.			
FY 2017 Plans: Will support completion of formal qualification testing, installation and functional check of hardware, design and development of aircrew and maintenance training system modification, developmental test and evaluation, and operational test completing in FY17.			
Accomplishments/Planned Programs Subtotals	31.772	7.403	11.837

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u> <u>Base</u>	<u>FY 2017</u> <u>OCO</u>	<u>FY 2017</u> <u>Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• APAF: BA05: Line Item # C00500: C-5	0.050	0.000	19.814	0.000	19.814	26.476	38.870	35.884	15.645	0.000	136.739
• APAF: BA06: Line Item # 000999: Initial Spares	0.000	0.382	2.348	0.000	2.348	1.826	3.160	3.111	0.000	0.000	10.827
• APAF: BA07: Line Item # 000075: Other Production	0.000	0.000	0.694	0.000	0.694	5.059	4.563	0.000	0.000	0.000	10.316

Remarks

D. Acquisition Strategy

Core mission computer/weather radar program: Engineering, manufacturing, development (EMD) for the core mission computer and weather radar began in FY13. The acquisition strategy for this project considered every opportunity to use commercial components to modernize the C-5 core mission computer and weather radar and maintain aircraft availability in support of mobility missions worldwide. The strategy is for the prime contractor, Lockheed Martin Aero (LMA), to procure the core mission computer cards and weather radar, integrate and test those components, and install on two (2) EMD aircraft. LMA was placed on contract in March 2014. The sole-source contract is predominately CPIF (Cost Plus Incentive Fee) with some FFP (Firm Fixed Price) elements.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0401119F / <i>C-5 Airlift Squadrons (IF)</i>	Project (Number/Name) 675358 / <i>C-5 Mission Computer-Mission Sys Equip-Weather Radar</i>

Mission Systems Equipment program: The mission systems equipment redesign requires RDT&E funding for commercial off-the-shelf (COTS) proofing. Funds are required for validation and verification of the lavatory design and installation. The Mission Systems Equipment contract method was competitive through the Defense Technical Information Center (DTIC). Wyle Science, Technical, and Engineering Group was the selected source, and the contract type is Cost Plus Fixed Fee (CPFF).

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0401119F / C-5 Airlift Squadrons (IF)	Project (Number/Name) 675358 / C-5 Mission Computer-Mission Sys Equip-Weather Radar
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Core Mission Computer and Weather Radar (CMC/WxRdr) Hardware/ Software Design, Development, Integration, Data Management, Technical Data Rights, Systems Engineering, and Program Management	SS/ Various	Lockheed Martin Aero : Marietta, GA	-	20.329	Mar 2015	1.950	Feb 2016	1.870	Feb 2017	0.000		1.870	0.000	24.149	82.189
Subtotal			-	20.329		1.950		1.870		0.000		1.870	0.000	24.149	82.189

Remarks
Total cost and target value of contract will not agree because prior year funds are not allowed as an input.

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
CMC/WxRdr Aircrew and Maintenance Trainers	SS/CPIF	Lockheed Martin Aero : Marietta, GA	-	1.896	Aug 2015	0.886	Dec 2015	3.000	Dec 2016	0.000		3.000	0.000	5.782	7.014
CMC/WxRdr Other Govt Costs (OGC)	Various	Various : TBD	-	3.108	Aug 2015	0.750	Dec 2015	2.622	Dec 2016	0.000		2.622	0.000	6.480	15.099
Subtotal			-	5.004		1.636		5.622		0.000		5.622	0.000	12.262	22.113

Remarks
Total cost and target value of contract will not agree because prior year funds are not allowed as an input.

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
CMC/WxRdr Developmental and	Various	Various : TBD	-	3.299	Sep 2015	2.298	Jun 2016	0.355	Dec 2016	0.000		0.355	0.000	5.952	7.452

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0401119F / C-5 Airlift Squadrons (IF)	Project (Number/Name) 675358 / C-5 Mission Computer-Mission Sys Equip-Weather Radar
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Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Operational Test and Evaluation															
CMC/WxRdr Qualification Testing	Various	Various : TBD	-	0.980	Nov 2015	0.460	Jun 2016	0.150	Dec 2016	0.000		0.150	0.000	1.590	1.590
Subtotal			-	4.279		2.758		0.505		0.000		0.505	0.000	7.542	9.042

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
CMC/WxRdr PMA Government Costs	Various	AFLCMC/WLS : Dayton, OH	-	2.160	Feb 2015	1.059	Feb 2016	3.840	Feb 2017	0.000		3.840	0.000	7.059	9.571
Subtotal			-	2.160		1.059		3.840		0.000		3.840	0.000	7.059	9.571

Remarks
Total cost and target value of contract will not agree because prior year funds are not allowed as an input.

	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	31.772	7.403	11.837	0.000	11.837	0.000	51.012	122.915

Remarks
Total cost and target value of contract will not agree because prior year funds are not allowed as an input.

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0401119F / C-5 Airlift Squadrons (IF)	Project (Number/Name) 675358 / C-5 Mission Computer-Mission Sys Equip-Weather Radar

	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Preliminary Design Review	■																											
Critical Design Review	■	■	■	■																								
Training Development	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Integrated Developmental/Operational Test and Evaluation									■	■	■	■																
Milestone C																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0401119F / C-5 Airlift Squadrons (IF)	Project (Number/Name) 675358 / C-5 Mission Computer-Mission Sys Equip-Weather Radar

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Preliminary Design Review	1	2015	1	2015
Critical Design Review	1	2015	4	2015
Training Development	1	2015	2	2017
Integrated Developmental/Operational Test and Evaluation	2	2016	2	2017
Milestone C	1	2017	1	2017

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force										Date: February 2016		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0401119F / C-5 Airlift Squadrons (IF)				Project (Number/Name) 675359 / CNS/ATM Mode5 Swift Broadband BLOS/LOS Radio			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
675359: CNS/ATM Mode5 Swift Broadband BLOS/LOS Radio	-	0.000	15.461	54.309	0.000	54.309	46.692	5.795	0.000	0.000	0.000	122.257
Quantity of RDT&E Articles	-	-	-	1	-	1	1	-	-	-		

A. Mission Description and Budget Item Justification

C-5 communication, navigation, surveillance/air traffic management (CNS/ATM) program is a comprehensive effort to ensure appropriate CNS/ATM system design architectures are developed and equipment is installed on the C-5 to allow aircraft operation in accordance with civil airspace access mandates for both the US national airspace system (NAS) and international civil airspace. Also, the program will add equipment to meet outstanding National Security Agency mandates for encryption of voice communications. The C-5 CNS/ATM program ensures system standardization and interoperability with other DoD systems to the maximum extent possible and directly supports airworthiness certification of the C-5. CNS/ATM requirements include, but are not limited to, capabilities such as automatic dependence surveillance-broadcast out (ADS-B Out), identification friend or foe (IFF) mode 5, satellite communication equipment replacement, and beyond line-of-sight voice radio replacement. It is anticipated equipment will be predominately commercial off-the-shelf or non-developmental items.

The current ARC-210 radio for VHF voice communications is facing diminishing manufacturing source (DMS) supply issues and additionally will no longer be capable of providing secure voice communications due to the development of new crypto algorithms. Addition of next generation ARC-210 radios and associated cryptologic equipment will enable the C-5 to meet NSA mandates for secure communications and allow aircrews to continue to communicate securely over VHF, UHF, HF, or MILSATCOM.

The current generation of satellites that support services used on the C-5 to provide oceanic controller/pilot data link communications (CPDLCs) to air traffic control and aircraft communications addressing and reporting system (ACARS) beyond-line-of-sight command and control messages will no longer be functional after 2016. The next generation of satellites will accommodate legacy C-5 SATCOM equipment for an interim period of time to allow for integration of upgraded SATCOM equipment compatible with this satellite constellation. Without this modification, the C-5 will be unable to fly oceanic tracks and will not be able to meet aircraft separation distance requirements for civil airspace access.

ADS-B Out is a next generation surveillance technology that transitions key aspects of air traffic control from terrestrial based technologies to satellite enabled technologies to provide controllers a more accurate picture of aircraft positioning. ADS-B Out will allow aircraft to provide continuous broadcast of aircraft position to both controllers and other aircraft equipped with ADS-B In capable avionics. International mandates for ADS-B Out for civil airspace access call for equipage by 2020.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2015	FY 2016	FY 2017
Title: CNS/ATM	0.000	15.461	54.309
Description: C-5 CNS/ATM program will install multiple aircraft avionic equipment pieces to enable the C-5 to meet multiple NSA encryption and international/national airspace access mandates while mitigating diminishing manufacturing source issues.			

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0401119F / C-5 Airlift Squadrons (IF)	Project (Number/Name) 675359 / CNS/ATM Mode5 Swift Broadband BLOS/LOS Radio

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
<p>FY 2015 Accomplishments: N/A</p> <p>FY 2016 Plans: CNS/ATM system design supports incorporation of ARC-210 Gen V radios, SATCOM replacement equipment, ADS-B Out, and IFF mode 5 into the C-5. Efforts include software design as well as hardware analysis for compatibility with existing C-5 system architecture.</p> <p>FY16 funding supports software design of all the areas to incorporate the various requirements as well as hardware analysis for compatibility with existing systems.</p> <p>FY 2017 Plans: CNS/ATM system design supports incorporation of ARC-210 Gen V radios, SATCOM replacement equipment, ADS-B Out, and IFF mode 5 into the C-5. Efforts will include software design as well as hardware analysis for compatibility with existing C-5 system architecture. Ensure test cases are prepared and ready to support the start of qualification testing.</p> <p>FY2017 funding supports formal qualification testing, software integration, equipment installation, and functional check of hardware.</p>			
Accomplishments/Planned Programs Subtotals	0.000	15.461	54.309

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u> <u>Base</u>	<u>FY 2017</u> <u>OCO</u>	<u>FY 2017</u> <u>Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• APAF: BA05: Line Item # C00500: C-5	0.000	0.000	0.000	0.000	0.000	7.821	23.613	27.571	46.746	-	-
• APAF: BA06: Line Item # 000999: Initial Spares	0.000	0.000	0.000	0.000	0.000	5.701	4.966	4.692	7.948	-	-

Remarks

D. Acquisition Strategy
CNS/ATM program: Engineering, manufacturing, development (EMD) for incorporation of the ARC-210 Gen V radio, SATCOM replacement equipment, ADS-B Out, and IFF mode 5 into the C-5 began in FY16. The acquisition strategy for this program will consider every opportunity to use commercial components to modernize the C-5 CNS/ATM equipment to meet mandates for global civil airspace access. The strategy is for the prime contractor, Lockheed Martin Aero (LMA), to procure CNS/

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0401119F / <i>C-5 Airlift Squadrons (IF)</i>	Project (Number/Name) 675359 / <i>CNS/ATM Mode5 Swift Broadband BLOS/LOS Radio</i>
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ATM equipment, develop software, test and integrate those components, and install on two (2) EMD aircraft. The equipment integration will require RDT&E funding for commercial off-the-shelf and non-developmental item proofing.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force											Date: February 2016				
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0401119F / C-5 Airlift Squadrons (IF)					Project (Number/Name) 675359 / CNS/ATM Mode5 Swift Broadband BLOS/LOS Radio				

Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
CNS/ATM hardware/ software design, development, integration, data management, technical data rights, systems engineering, program management, and spares	Various	Lockheed Martin Aero : Marietta, GA	-	0.000		8.483	Apr 2016	41.053	Feb 2017	0.000		41.053	Continuing	Continuing	79.268
Subtotal			-	0.000		8.483		41.053		0.000		41.053	-	-	79.268

Remarks
Total Cost and Target Value of Contract will not agree because cost to complete funds are not allowed as an input.

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
CNS/ATM Other Government Cost	Various	AFLCMC/WLS : Dayton, OH	-	0.000		1.500	Apr 2016	0.951	Feb 2017	0.000		0.951	Continuing	Continuing	9.201
CNS/ATM Training	Various	Lockheed Martin Aero : Marietta, GA	-	0.000		0.000	Apr 2016	0.190	Feb 2017	0.000		0.190	Continuing	Continuing	0.775
CNS/ATM Peculiar Support Eequipment	Various	Lockheed Martin Aero : Marietta, GA	-	0.000		0.300	Apr 2016	0.000		0.000		0.000	Continuing	Continuing	0.300
CNS/ATM Trainers & Simulators	Various	Various : Various	-	0.000		0.800	Apr 2016	6.500	Feb 2017	0.000		6.500	Continuing	Continuing	14.900
Subtotal			-	0.000		2.600		7.641		0.000		7.641	-	-	25.176

Remarks
Total Cost and Target Value of Contract will not agree because cost to complete funds are not allowed as an input.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0401119F / C-5 Airlift Squadrons (IF)	Project (Number/Name) 675359 / CNS/ATM Mode5 Swift Broadband BLOS/LOS Radio
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Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
CNS/ATM System Test/Qual	Various	Lockheed Martin Aero : Marietta, GA	-	0.000		0.000	Apr 2016	3.700	Feb 2017	0.000		3.700	Continuing	Continuing	10.000
CNS/ATM System Software Integration Lab	Various	Various : TBD	-	0.000		1.100	Apr 2016	0.300	Feb 2017	0.000		0.300	Continuing	Continuing	1.400
Subtotal			-	0.000		1.100		4.000		0.000		4.000	-	-	11.400

Remarks
Total Cost and Target Value of Contract will not agree because cost to complete funds are not allowed as an input.

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
CNS/ATM Program Management Administration	Various	AFLCMC/WLS : Dayton, OH	-	0.000		3.200	Apr 2016	1.400	Feb 2017	0.000		1.400	Continuing	Continuing	5.900
CNS/ATM Travel	Various	AFLCMC/WLS : Dayton, OH	-	0.000		0.078	Apr 2016	0.215	Feb 2017	0.000		0.215	Continuing	Continuing	0.513
Subtotal			-	0.000		3.278		1.615		0.000		1.615	-	-	6.413

Remarks
Total Cost and Target Value of Contract will not agree because cost to complete funds are not allowed as an input.

	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals		-	0.000	15.461	54.309	0.000	-	-	122.257

Remarks
Total Cost and Target Value of Contract will not agree because cost to complete funds are not allowed as an input.

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0401119F / C-5 Airlift Squadrons (IF)	Project (Number/Name) 675359 / CNS/ATM Mode5 Swift Broadband BLOS/LOS Radio

	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
MDD/ASP	■																											
Milestone B	■																											
Engineering, Manufacturing, and Development (EMD)	■																											
EMD Contract Awards	■																											
Preliminary Design Review	■																											
Critical Design Review	■																											
Training Development	■																											
Integrated Developmental/Operational Test and Evaluation	■																											
Milestone C	■																											
Initial Operational Capability	■																											

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0401119F / C-5 Airlift Squadrons (IF)	Project (Number/Name) 675359 / CNS/ATM Mode5 Swift Broadband BLOS/LOS Radio

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
MDD/ASP	2	2015	2	2015
Milestone B	3	2016	3	2016
Engineering, Manufacturing, and Development (EMD)	3	2016	2	2019
EMD Contract Awards	3	2016	3	2016
Preliminary Design Review	4	2016	4	2016
Critical Design Review	1	2017	1	2017
Training Development	1	2018	4	2018
Integrated Developmental/Operational Test and Evaluation	1	2018	1	2019
Milestone C	3	2018	3	2018
Initial Operational Capability	4	2020	4	2020

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0401130F I C-17 Aircraft (IF)
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	-	72.566	48.807	12.430	0.000	12.430	71.563	72.890	28.715	24.845	Continuing	Continuing
672569: <i>C-17A Aircraft</i>	-	72.566	48.807	12.430	0.000	12.430	71.563	72.890	28.715	24.845	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

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 security strategy and constitutes the most responsive means of meeting mobility requirements. Specific tasks associated with the airlift mission include deployment, employment, 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 its airlift mission well into this century.

C-17 RDT&E funding efforts support, but are not limited to: Aircraft performance improvements and airspace access mandates (i.e., Communications/Navigation Improvements); flight test activities and facilities; development of solutions for obsolescence and safety of flight issues; systems engineering/program management administration support; support for avionics laboratories; block development/change management; proposal preparation for new projects; cost estimating and engineering/acquisition studies not related to requirements generation.

In FY15 the major thrusts under "Accomplishments/Planned Programs" are: Performance Improvement and Obsolescence, Systems Engineering/Program Management, Boeing Flight Test and Edwards Flight Test. In FY16 the major thrusts transition to: Common Configuration (CC), Extended Range Onboard Inert Gas Generating System (ER/OBIGGS)II, and Beyond Line of Sight (BLOS); which are Air Force Acquisition Master List Programs.

CC includes several projects: Modernized Replacement Core Integrated Processor (M-RCIP), Communication and Navigation Capability (Comm Nav), Replacement Heads Up Display (RHUD), and Software Improvements.

ER OBIGGS II includes OBIGGS Filter Fire Fix which is a redesign of the OBIGGS II shutoff valve.

BLOS includes, but is not limited to: Narrowband tactical satellite communications Mobile User Objective System (MUOS); both Aero H/Aero I multi-channel voice and data upgrades delivered via an intermediate-gain antenna; next-generation Military GPS receiver (M-Code); and upgrades for Ka/Ku band satellite communications.

This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0401130F / C-17 Aircraft (IF)
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B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	82.948	54.807	32.877	0.000	32.877
Current President's Budget	72.566	48.807	12.430	0.000	12.430
Total Adjustments	-10.382	-6.000	-20.447	0.000	-20.447
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	-6.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	-10.382	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	-20.447	0.000	-20.447

Change Summary Explanation

FY15: The FY2015 funding was reduced by \$10.382 million for higher AF priorities.

FY16: The FY2016 funding was reduced by \$6 million due to a Congressionally directed reduction for "program decrease".

FY17: Funding request was reduced by \$20.447M to account for the availability of prior year execution balances.

C. Accomplishments/Planned Programs (\$ in Millions)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Performance Improvement and Obsolescence	57.273	0.000	0.000	0.000	0.000
Description: Continued development of C-17 aircraft performance improvements for its avionics, aircraft and mission systems and the development of solutions to emergent obsolescence and safety of flight issues, airspace access mandates and engineering/acquisition studies not related to requirements generation.					
FY 2015 Accomplishments: Continued development of C-17 aircraft performance improvements/mandates to include, but not limited to, RHUD and ADS-B out. Completed Instrument Landing Systems & Flight Control Computer updates. Began efforts to redesign On-Board Inert Gas Generation System II (OBIGGS II) shut off valve to eliminate the potential for OBIGGS II filter fires and improve fuel efficiency.					
FY 2016 Plans:					

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force				Date: February 2016	
Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>		R-1 Program Element (Number/Name) PE 0401130F I C-17 Aircraft (IF)			
C. Accomplishments/Planned Programs (\$ in Millions)					
	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
N/A					
FY 2017 Base Plans: N/A					
FY 2017 OCO Plans: N/A					
Title: Systems Engineering/Program Management	4.126	0.000	0.000	0.000	0.000
Description: Continuation of Systems Engineering/prime contractor Program Management (SE/PM). Funding supports software updates, system integration, software development, laboratories, test facilities, and programmatic efforts in support of C-17.					
FY 2015 Accomplishments: Continued SE/PM. Supported software updates, system integration and software development laboratories, test facilities, and programmatic efforts.					
FY 2016 Plans: N/A					
FY 2017 Base Plans: N/A					
FY 2017 OCO Plans: N/A					
Title: Boeing Flight Test	5.000	0.000	0.000	0.000	0.000
Description: Continues contractor testing of new capabilities as required. Costs include maintenance on test aircraft, contractor engineering support for test related technical and safety of flight issues, test planning, test analysis and test execution.					
FY 2015 Accomplishments: Continued contractor testing of new capabilities.					

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force				Date: February 2016		
Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>		R-1 Program Element (Number/Name) PE 0401130F / <i>C-17 Aircraft (IF)</i>				
C. Accomplishments/Planned Programs (\$ in Millions)		FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>Costs included maintenance on test aircraft, contractor engineering support for test related technical and safety of flight issues, test planning, test analysis and test execution.</p> <p>FY 2016 Plans: N/A</p> <p>FY 2017 Base Plans: N/A</p> <p>FY 2017 OCO Plans: N/A</p>						
<p>Title: Edwards Flight Test</p> <p>Description: Continues direct costs of flight testing. The costs include ramp space, fuel, air traffic control, range costs, etc., which are items each weapon system must pay when using Air Force flight test locations.</p> <p>FY 2015 Accomplishments: Continued direct costs of flight testing.</p> <p>The costs included ramp space, fuel, air traffic control, range costs, etc., which each weapon system must pay for when using Air Force flight test locations.</p> <p>FY 2016 Plans: N/A</p> <p>FY 2017 Base Plans: N/A</p> <p>FY 2017 OCO Plans: N/A</p>		6.167	0.000	0.000	0.000	0.000
<p>Title: Common Configuration</p> <p>Description: Common Configuration (CC) is a multiple development, integration and retrofit project to support achievement of the C-17 A Block 18+ baseline. It consists of projects including M-RCIP, Comm Nav, and RHUD that lead to modifications and upgrades to the C-17. Support for on going flight test, software labs, system</p>		0.000	9.048	1.186	0.000	1.186

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0401130F I C-17 Aircraft (IF)
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>engineering, program management and engineering/acquisition studies not related to requirements generation are included in the overall program cost.</p> <p>FY 2015 Accomplishments: N/A</p> <p>FY 2016 Plans: Completes ADS-B out. Continues development of RHUD. Support for on going flight test, software labs, system engineering, program management and engineering/acquisition studies not related to requirements generation are included in the overall program cost.</p> <p>FY 2017 Base Plans: Will continue development of RHUD. Support for on going flight test, software labs, system engineering, program management and engineering/acquisition studies not related to requirements generation are included in the overall program cost.</p> <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: Extended Range Onboard Inert Gas Generating System II</p> <p>Description: Extend Range Onboard Inert Gas Generating System II (ER/OBIGGS II) Filter Fire Fix is a program that redesigns the OBIGGS II shutoff valve and makes software changes to the Warning and Caution Computer (WCC). It includes support for on going flight test, software labs, system engineering, program management and engineering/acquisition studies not related to requirements generation.</p> <p>FY 2015 Accomplishments: N/A</p> <p>FY 2016 Plans: Redesign OBIGGS II shut off valve to eliminate the potential for OBIGGS II filter fires and improve fuel efficiency. It will include support for on going flight test, software labs, system engineering, program management and engineering/acquisition studies not related to requirements generation.</p> <p>FY 2017 Base Plans: N/A</p> <p>FY 2017 OCO Plans:</p>	0.000	39.759	0.000	0.000	0.000

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0401130F / C-17 Aircraft (IF)
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
N/A					
Title: Beyond Line of Sight Description: Beyond Line-Of-Sight (BLOS) modernization modifications is a development, integration, and retrofit program for C-17 communications. BLOS modifies and improves hardware and software for voice and data communications on the C-17. The program will modify both integrated aircraft avionics as well as back-end mission communications and could utilize both military and commercial satellite systems to extend communication ranges. The current efforts include but are not limited to AERO-I modernization (multi-channel voice and data delivered via an intermediate-gain antenna), increased broadband and secure data capability. It includes support for on going flight test, software labs, system engineering, program management and engineering/acquisition studies not related to requirements generation. FY 2015 Accomplishments: N/A FY 2016 Plans: N/A FY 2017 Base Plans: BLOS efforts will include work on: Narrowband tactical satellite communications Mobile User Objective System (MUOS); both Aero H/Aero I multi-channel voice and data upgrades delivered via an intermediate-gain antenna; next-generation military GPS receiver (M-Code); upgrades for Ka/Ku band satellite communications; and upgrades to the ARC-210 radio. It will include support for on-going flight test, software labs, system engineering, program management and engineering/acquisition studies not related to requirements generation. FY 2017 OCO Plans: N/A	0.000	0.000	11.244	0.000	11.244
Accomplishments/Planned Programs Subtotals	72.566	48.807	12.430	0.000	12.430

D. Other Program Funding Summary (\$ in Millions)						Cost To					
<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Complete</u>	<u>Total Cost</u>
• APAF: BA05: Line Item # C01700: C-17A	70.894	43.697	21.555	0.000	21.555	93.547	63.526	52.445	53.412	Continuing	Continuing

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0401130F / <i>C-17 Aircraft (IF)</i>
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D. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u> <u>Base</u>	<u>FY 2017</u> <u>OCO</u>	<u>FY 2017</u> <u>Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• APAF: BA07: Line Item # C01700: <i>C-17A</i>	20.110	15.054	23.559	0.000	23.559	16.329	0.000	0.000	0.000	Continuing	Continuing
• APAF: BA06: Line Item # 000999: <i>C-17A</i>	15.801	12.450	9.400	0.000	9.400	13.227	12.995	13.180	13.423	Continuing	Continuing

Remarks

E. Acquisition Strategy

The C-17 Acquisition Strategy is based on several separate contracts to support the entire scope of the C-17 weapon system. Globemaster Operational Enhancement (GLOBE) is an indefinite delivery, indefinite quantity (IDIQ) contract used to purchase services and research articles (through delivery orders) to support all RDT&E with our prime contractor. In addition, purchase orders are used to support flight test activities at Edwards AFB. Additional contract vehicles could be utilized as required.

F. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0401130F / C-17 Aircraft (IF)	Project (Number/Name) 672569 / C-17A Aircraft
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Performance Improvement and Obsolescence	Various	Boeing : Long Beach, CA	-	57.273	Nov 2014	0.000		0.000		0.000		0.000	Continuing	Continuing	-
Systems Engineering/ Program Management	Various	Boeing : Long Beach, CA	-	4.126	Nov 2014	0.000		0.000		0.000		0.000	Continuing	Continuing	-
Common Configuration	Various	Boeing : Long Beach, CA	-	0.000		9.048	Nov 2015	1.186	Nov 2016	0.000		1.186	Continuing	Continuing	-
Extended Range Onboard Inert Gas Generating System II	Various	Boeing : Long Beach, CA	-	0.000		39.759	May 2016	0.000		0.000		0.000	0.000	39.759	-
Beyond Line of Sight	Various	Boeing : Long Beach, CA	-	0.000		0.000		11.244	Jul 2017	0.000		11.244	Continuing	Continuing	-
Subtotal			-	61.399		48.807		12.430		0.000		12.430	-	-	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Edwards Flight Test	PO	AFTC : Edwards, CA	-	6.167	Nov 2014	0.000		0.000		0.000		0.000	Continuing	Continuing	-
Boeing Flight Test	SS/CPIF	Boeing : Long Beach, CA	-	5.000	Nov 2014	0.000		0.000		0.000		0.000	Continuing	Continuing	-
Subtotal			-	11.167		0.000		0.000		0.000		0.000	-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0401130F / C-17 Aircraft (IF)	Project (Number/Name) 672569 / C-17A Aircraft
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Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-
			Prior Years	FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	72.566		48.807		12.430		0.000		12.430	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0401130F / C-17 Aircraft (IF)	Project (Number/Name) 672569 / C-17A Aircraft
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	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

Common Configuration (ACAT II)																												
-- Replacement Heads Up Display (RHUD) - Critical Design Review (CDR)																												
-- RHUD - Systeem Test Readiness Review:																												
-- RHUD - Flight Test Begins																												
ER/OBIGGS (ACAT II)																												
-- Projected contract award																												
BLOS																												
-- AERO I/AERO H Replacement - Request for Proposal																												
-- AERO I/AERO H Replacement - Advanced technology demonstration																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0401130F / C-17 Aircraft (IF)	Project (Number/Name) 672569 / C-17A Aircraft
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Common Configuration (ACAT II)	1	2016	1	2018
-- Replacement Heads Up Display (RHUD) - Critical Design Review (CDR)	1	2016	1	2016
-- RHUD - System Test Readiness Review:	2	2017	2	2017
-- RHUD - Flight Test Begins	3	2017	3	2017
ER/OBIGGS (ACAT II)	3	2016	2	2018
-- Projected contract award	3	2016	3	2016
BLOS	1	2018	3	2021
-- AERO I/AERO H Replacement - Request for Proposal	4	2017	4	2017
-- AERO I/AERO H Replacement - Advanced technology demonstration	3	2018	3	2018

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0401132F / C-130J Program
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	210.351	26.715	25.010	16.776	0.000	16.776	18.344	10.820	0.659	0.670	30.396	339.741
675061: C-130J	205.921	24.542	25.010	16.776	0.000	16.776	18.344	10.820	0.659	0.670	30.396	333.138
675062: C-130J TRAINERS	4.430	2.173	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	6.603

Program MDAP/MAIS Code: 220

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 and AC-130J). All aircraft variants must be capable of worldwide operations.

This program provides RDT&E funding for required capabilities that are grouped as "Block" upgrades or "Capability" updates. Currently, Block 7.0/8.1 and Capability Management Updates (CMUs) add capabilities to address Communication, Navigation, Surveillance, and Air Traffic Management (CNS/ATM) requirements. All are collaborative efforts between Seven Nations. Content/requirements for block modifications is documented in International Program Directives (IPDs) as determined in the Cooperative Systems and Software Upgrade Requirements Management (COSSURM) process.

The HC/MC Recap Program will integrate the common-core capabilities developed under this program into the HC-130J, MC-130J and AC-130J.

This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

The FY 2017 funding request was reduced by \$9.614 million to account for availability of prior execution balances.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0401132F / C-130J Program
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B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	26.715	31.010	26.390	0.000	26.390
Current President's Budget	26.715	25.010	16.776	0.000	16.776
Total Adjustments	0.000	-6.000	-9.614	0.000	-9.614
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	-12.400			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	6.400			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	-9.614	0.000	-9.614

Change Summary Explanation

The FY2016 funding was reduced by \$12.4 million due to a Congressionally directed reduction for program decrease. Additionally FY2016 funding was added by \$6.4 million due to a Congressionally directed add for In-flight prop balancing system.

The FY 2017 funding request was reduced by \$9.614 million to account for availability of prior execution balances.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force										Date: February 2016		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0401132F / C-130J Program				Project (Number/Name) 675061 / C-130J			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
675061: C-130J	205.921	24.542	25.010	16.776	0.000	16.776	18.344	10.820	0.659	0.670	30.396	333.138
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

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 and AC-130J). All aircraft variants must be capable of worldwide operations.

This project provides RDT&E funding for required capabilities that are grouped as "Block" upgrades or "Capability" updates. Content/requirements for block modifications is documented in International Program Directives (IPDs) as determined in the Cooperative Systems and Software Upgrade Requirements Management (COSSURM) process. This project will integrate the common-core capabilities developed under this program into the HC-130J, MC-130J and AC-130J.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2015	FY 2016	FY 2017
Title: Cooperative Systems and Software Upgrade Requirements Management (COSSURM)	0.248	0.367	0.400
Description: COSSURM - Collects potential requirements for inclusion into a Block Upgrade or Capability Management Update.			
FY 2015 Accomplishments: CMU COSSURM efforts included the Design Approach and Approval Meeting (DAAM), Requirements Approval Meeting (RAM), Systems Requirements Review (SRR), System Design Review (SDR), Certification Working Group (CertWG) and we received approval to proceed to Request for Proposal (RFP).			
FY 2016 Plans: Continuation of CMU COSSURM requirements review and analysis.			
FY 2017 Plans: Continuation of CMU COSSURM requirements review and analysis.			
Title: Block 7.0	1.955	0.100	-
Description: BLOCK 7.0: Adds Link 16, a new Flight Management System (FMS), Civil Global Positioning System (GPS) Navigation, and a Special Mission Processor-Interface (SMP-I). Defense Contract Management Agency Support is included here.			
FY 2015 Accomplishments: Completed Data Transfer and Diagnostic System(DTADS) software and Item Unique Identification(IUID) software development.			
FY 2016 Plans:			

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016		
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0401132F / C-130J Program	Project (Number/Name) 675061 / C-130J		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2015	FY 2016	FY 2017
Complete DO178B software testing. DO178B is the software certification standard for commercial aircraft.				
Title: Block 8.1		18.943	19.360	9.294
Description: BLOCK 8.1 Adds Identification Friend or Foe (IFF) Mode 5, Civil Data Link, Automatic Dependent Surveillance - Broadcast (ADS-B), Air Traffic Services (ATS)/Airline Operational Control (AOC) Data Link for Line of Sight (LOS) and Beyond Line of Sight (BLOS) communication, enhanced covert lighting, improved Public Address(PA) System, and Approach Procedure with Vertical guidance (APV)/ Localizer Performance with Vertical guidance (LPV) approach capability. Several avionics platforms are impacted that include Flight Management System Software, Mission Computer Software, Bus Interface Unit software, and Maintenance Management System.				
FY 2015 Accomplishments: The Block 8.1 effort continued with the Common Core hardware and software development. Major milestones included the completion of Functional Qualification Test (FQT) #1, Test Readiness Review (TRR), First Flight Readiness Review (FFRR), and initial Developmental Test and Evaluation (DT&E).				
FY 2016 Plans: Complete the Block 8.1 Common Core hardware and software development and delta DT&E, initiate integration development for combined Block 7.0/8.1 TKI efforts, and complete the Block 8.1 hardware TKI installation for the USAF short aircraft.				
FY 2017 Plans: Complete integration development for the combined Block 7.0/8.1 USAF stretch and short aircraft, continue integration development for the combined Block 7.0/8.1 follow on TKIs.				
Title: Test & Evaluation		3.346	1.514	0.820
Description: Test and evaluation planning, conduct, and support for developmental, and operational testing.				
FY 2015 Accomplishments: Completion of initial Developmental Test & Evaluation (DT&E) for Functional Qualification Test (FQT) #1 and continuation of test planning and support for delta DT&E for FQT #2.				
FY 2016 Plans: Completion of delta test planning and execution of delta DT&E for FQT #2. Initiate test planning and support for follow on Trial Kit Installations (TKIs).				
FY 2017 Plans: Continuation of test planning and support for follow on TKIs.				
Title: Capability Management Update (CMU)		0.000	2.160	2.460

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0401132F / C-130J Program	Project (Number/Name) 675061 / C-130J

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
<p>Description: CMU's refine Block upgrade modifications that improve operational effectiveness, satisfy emerging operational needs, and enhance human machine interface (HMI) to allow a workload that meets human factors standards and maintains the present crew complement. Avionics software impacted includes Flight Management System (FMS) Software, Mission Computer (MC) Software, Bus Interface Unit (BIU) software, and Maintenance Management System.</p> <p>FY 2015 Accomplishments: Request for Proposal (RFP) released and completion of the Initial Certification Working Group (ICertWG).</p> <p>FY 2016 Plans: Award contract and Common Core software development will begin.</p> <p>FY 2017 Plans: Continuation of Common Core software development.</p>			
<p>Title: Other AMC Initiatives</p> <p>Description: C-130J initiatives/studies.</p> <p>FY 2015 Accomplishments: Wheel/Brake System Improvement (WBSI) Brake Energy/Takeoff Landing Data (TOLD) Data Collection initiated.</p> <p>FY 2016 Plans: Wheel/Brake System Improvement (WBSI) Brake Energy/Takeoff Landing Data (TOLD) Data Collection continue. Mission Planning software studies and updates continue.</p> <p>FY 2017 Plans: Replacement of current UHF MILSATCOM Radio with more advanced SATCOM radio that involves minimal integration costs and schedule impact to the AMC Fleet of C-130Js. Mission Planning software studies and updates continue.</p>	0.050	1.509	3.802
Accomplishments/Planned Programs Subtotals	24.542	25.010	16.776

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• APAF: BA05: Line Item # C1300J: C-130J Mods	25.919	29.713	89.424	0.000	89.424	110.174	139.191	133.016	135.467	742.634	1,301.802

Remarks
The Mods above are linked to C-130J R&D. There are other C-130J modification projects without associated R&D.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force Date: February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0401132F / C-130J Program	Project (Number/Name) 675061 / C-130J
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D. Acquisition Strategy

The C-130J aircraft will be modified using a "block upgrade" strategy. The CNS/ATM, navigation safety requirement will initially, be met in three block upgrades. Block 6.0 development was funded from FY03-07. Block 7.0 started in FY07, and Block 8.1 which began in FY12. Subsequently, C-130J modifications will be grouped into smaller CNS/ATM software only updates known as Capability Management Updates (CMU). Other AMC initiatives are upgrades to hardware and software that have arisen after the formation of the block upgrades and CMUs.

In order to better manage the fleet and to avoid having to simultaneously support three separate aircraft configurations (Block 6, Block 7 and Block 8.1) the USAF has decided to combine the Block 7 and Block 8.1 mods. This will allow the aircraft and trainers to only have to be modified one time.

The proportion of CNS/ATM and navigation safety requirements allocated to Blocks 6.0 through 8.1 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 (PA) 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 upgrades development effort. Retrofit of a Block on the aircraft is the responsibility of each nation.

The USAF is considering fielding the IFF Mode 5 and ADS-B Out portions of Block 8.1 ahead of the remaining 36 capabilities in order to comply with the 2020 mandates.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0401132F / C-130J Program	Project (Number/Name) 675061 / C-130J
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
C-130J Block 7.0, Air Force Life Cycle Mgmt Ctr (AFMC), WPAFB, OH	SS/CPAF	Lockheed Martin Aeronautics : Marietta, GA	127.448	1.955	Nov 2014	0.100	Nov 2015	0.000		0.000		0.000	0.000	129.503	129.503
C-130J Block 8.1, Air Force Life Cycle Mgmt Ctr (AFMC), WPAFB, OH	SS/CPAF	Lockheed Martin Information Sysyems : Marietta, GA	65.192	18.843	Apr 2015	17.275	Apr 2016	7.139	Apr 2017	0.000		7.139	49.876	158.325	180.030
C-130J Capability Management Upgrades (CMU) 1 & 2, Air Force Life Cycle Mgmt Ctr (AFMC), WPAFB, OH	SS/CPAF	Lockheed Martin Aero : Marietta, GA	0.000	0.000		2.160	May 2016	2.460	May 2017	0.000		2.460	1.860	6.480	6.480
C-130J AMC-Initiatives, Air Force Life Cycle Mgmt Ctr (AFMC), WPAFB, OH	SS/CPAF	Lockheed Martin Aero : Marietta, GA	9.369	0.050	Feb 2015	1.509	Feb 2016	3.802	Feb 2017	0.000		3.802	0.000	14.730	14.730
Subtotal			202.009	20.848		21.044		13.401		0.000		13.401	51.736	309.038	330.743

Remarks
C-130J Block 8.1 Total Cost is below Target Value of Contract to account for the expected cost reduction initiatives on this Cost Plus Award Fee Contract.

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
C-130J Block 8.1 DT and E	PO	EGLIN AFB : Eglin, FL	1.810	3.346	Nov 2014	1.514	Nov 2015	0.820	Nov 2016	0.000		0.820	0.000	7.490	7.490
Subtotal			1.810	3.346		1.514		0.820		0.000		0.820	0.000	7.490	7.490

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0401132F / C-130J Program	Project (Number/Name) 675061 / C-130J
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Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
C-130J IPO Support	TBD	N/A : TBD	0.674	0.100	Nov 2014	2.085	Nov 2015	2.155	Nov 2016	0.000		2.155	0.000	5.014	5.014
C-130J COSSURM	TBD	RAF : TBD	1.428	0.248	Jan 2015	0.367	Jan 2016	0.400	Jan 2017	0.000		0.400	0.000	2.443	2.443
Subtotal			2.102	0.348		2.452		2.555		0.000		2.555	0.000	7.457	7.457

Remarks
The COSSURM contract is managed by the United Kingdom Royal Air Force (RAF)

	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	205.921	24.542	25.010	16.776	0.000	16.776	51.736	323.985	345.690

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0401132F / C-130J Program	Project (Number/Name) 675061 / C-130J

	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Block 7.0 Trial Kit Installation (TKI) 1	████████																											
Block 8.1 Development	████████████████																											
Block 8.1 Development Test & Evaluation	████████████████																											
Block 8.1 FCA/ PCA (Functional & Physical Configuration Audit)					████																							
Block 7.0/ 8.1 Trial Kit Installation (TKI) 2 - 7					██																							
CMU #1					████████████████████																							

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0401132F / C-130J Program	Project (Number/Name) 675061 / C-130J
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Block 7.0 Trial Kit Installation (TKI) 1	1	2015	2	2015
Block 8.1 Development	1	2015	3	2016
Block 8.1 Development Test & Evaluation	1	2015	3	2016
Block 8.1 FCA/ PCA (Functional & Physical Configuration Audit)	2	2016	2	2016
Block 7.0/ 8.1 Trial Kit Installation (TKI) 2 - 7	4	2015	1	2019
CMU #1	3	2016	2	2018

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0401132F / C-130J Program				Project (Number/Name) 675062 / C-130J TRAINERS			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
675062: C-130J TRAINERS	4.430	2.173	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	6.603
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project will enhance aircrew simulator fidelity utilizing aircraft flight tests to gather data to accurately emulate ground effect, nose wheel and engine-out data points. Currently the simulator is approved to accomplish only 50% of annual assault landings. This added capability will allow more training to be accomplished in the simulator so the aircraft will be available for more real world missions. The ability to accomplish more training in the simulator also reduces the annual aircraft O&M requirement.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2015	FY 2016	FY 2017
Title: Aero Data Collection	2.173	-	-
Description: Utilize aircraft flight tests, gather data for simulator to accurately emulate ground effect, nose wheel and single engine data points to make simulator land like the aircraft. Simulator is currently approved to accomplish only 50% of assault landings. Effort includes aircraft modification to collect all data points and de-modification after data collection to return aircraft to previous status.			
FY 2015 Accomplishments: Aero Data collection was completed. Aero Data will be analyzed and used to update Weapon System Trainers. This will allow more training to be accomplished in the simulators.			
Accomplishments/Planned Programs Subtotals	2.173	-	-

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

N/A

Remarks

There is no hardware modification program linked to this RDT&E effort

D. Acquisition Strategy

One C-130J was instrumented to collect data during takeoff, approach and landing phases of flight. This data will be used to enable the C-130J Weapon System Trainers to more accurately emulate ground effect, nose wheel, and engine out data points so the simulator will land more like the aircraft. The ability to accomplish more training in the simulator also reduces the annual aircraft O&M requirement.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0401132F / C-130J Program	Project (Number/Name) 675062 / C-130J TRAINERS
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
C-130J Simulator Aero Data	SS/FFP	Lockheed Martin GTL : Orlando, FL	4.430	2.173	Jun 2015	0.000		0.000		0.000		0.000	0.000	6.603	6.603
Subtotal			4.430	2.173		0.000		0.000		0.000		0.000	0.000	6.603	6.603

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

			Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			4.430	2.173	0.000	0.000	0.000	0.000	0.000	6.603	6.603

Remarks
Prior years is \$4.430M, this is why the total differs from the target value significantly.

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0401132F / C-130J Program	Project (Number/Name) 675062 / C-130J TRAINERS
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	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

Software Development Testing & Evaluation	
Aircraft De-modification	

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0401132F / C-130J Program	Project (Number/Name) 675062 / C-130J TRAINERS

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Software Development Testing & Evaluation	1	2015	1	2016
Aircraft De-modification	1	2015	3	2016

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0401134F / <i>Large Aircraft IR Countermeasures (LAIRCM)</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	-	4.672	6.802	5.166	0.000	5.166	5.267	5.365	5.462	5.559	Continuing	Continuing
674942: <i>Large Aircraft Infrared Counter Measures (LAIRCM)</i>	-	4.672	6.802	5.166	0.000	5.166	5.267	5.365	5.462	5.559	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Large Aircraft Infrared Countermeasures (LAIRCM) system 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 missile warning sensors (MWS), a laser transmitter assembly, control interface unit (CIU) and processors to detect, track, jam and counter incoming IR missiles. The number of sensors and transmitter assemblies per aircraft is determined by the size and signature of the aircraft. The 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 03 Aug 98. The system was first fielded on the C-17 aircraft.

The baseline program development is complete and consists of the small laser transmitter assembly (SLTA), ultra-violet MWS, processor, 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 to improve reliability, enhance performance, address obsolescence issues, reduce mass and improve overall functionality. First production GLTA delivery occurred in June 08.

Development of the Next Generation Missile Warning System (NexGen MWS) is complete and includes new hardware that improves capability. Baseline equipment (ultra-violet MWS) will be retrofitted with the NexGen MWS as it becomes available. Developmental test/operational test (DT/OT) was conducted in FY10 with initial operational test and evaluation (IOT&E) in FY11.

LAIRCM upgrades include, but are not limited to hardware and software upgrades and testing of the LAIRCM system to maintain defensive capability against new and emerging threats.

Current and future efforts include Threat Analysis; Modeling, Simulation and Emulation Test; Hardware, Software and Firmware Upgrades; Virtual System Integration Lab (SIL) Development; and Studies and Analysis.

Threat Analysis: Threat analysis encompasses the activities to support threat exploitation analysis of a variety of threats (both known and emerging) against the current LAIRCM jam code with the intent of determining if jam code updates are required. Typical threat analysis activities include: Threat seeker characterization; model development for advanced threat IR seekers; development and testing of new infrared countermeasures concepts, techniques, and hardware; new technology assessment for potential incorporation into the LAIRCM system, and the evaluation/exploitation of new threats and threat characteristics relative to IRCM.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force Date: February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0401134F / <i>Large Aircraft IR Countermeasures (LAIRCM)</i>
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Modeling, Simulation, and Emulation Testing: Modeling, simulation, and emulation activities verify and validate the information obtained from the threat analysis activities. These activities include: Evaluation of infrared countermeasures (IRCM) techniques used in defeating real threat hardware; developing and evaluating jam code; validating and verifying integration of LAIRCM system components to newly developed jam codes, software or hardware; evaluating system effectiveness; performing platform integration support tests; and conducting predictive risk reduction tests prior to Live Missile Fire Test (LMFT) or on aircraft flight testing.

Hardware, Software, and Firmware Upgrades: Includes changes of any kind to any LAIRCM hardware components/support equipment with the purpose of adding capability, features, and enhancements which do not presently exist to ensure the LAIRCM system remains viable against current and emerging threats.

-----Hardware upgrade activities include engineering tasks required to design, develop, test and produce new capabilities, features, and enhancements, and changes of any kind to any portion of LAIRCM hardware with the purpose of adding capability, features and enhancements which do not presently exist.

-----Software upgrade activities include engineering tasks required to design, develop, and test the new or modified code that result in new capabilities, features, and enhancements and changes of any kind to any portion of LAIRCM software with the purpose of adding capability, features and enhancements which do not presently exist. Software upgrades can occur in any of the Line Replaceable Unit (LRU) Operation Flight Programs as well as any of the software residing in other LAIRCM-associated components including those systems which support development and test or the LAIRCM support equipment.

-----Firmware upgrade activities include engineering tasks required to design, develop, and test the upgrades and those changes resulting from hardware and software updates/modifications as well as firmware upgrades which add new features.

Virtual SIL Development: Incrementally design, develop, integrate, and test software code and purchase associated infrastructure (i.e., computers, servers, commercial-off-the-shelf (COTS) software, etc.) necessary to develop and implement a virtual SIL providing a critical capability for testing the LAIRCM system to ensure continued effectiveness against current and emerging threats.

Studies and Analysis: Includes logistics, programmatic, and engineering studies and analysis activities to ensure continued system viability and sustainability and compliance with acquisition directives. These activities may include the evaluation of low cost/high payback opportunities to reduce software development/implementation cost, enhance production efficiency, and improve life cycle costs through increased reliability and reduced repair and return cost.

Program management and administration efforts consist of, but are not limited to, contract services and government costs.

This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development	R-1 Program Element (Number/Name) PE 0401134F / Large Aircraft IR Countermeasures (LAIRCM)
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B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	4.672	6.802	5.845	0.000	5.845
Current President's Budget	4.672	6.802	5.166	0.000	5.166
Total Adjustments	0.000	0.000	-0.679	0.000	-0.679
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	-0.679	0.000	-0.679

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>Title: Threat Analysis</p> <p>Description: Encompasses the activities to support threat exploitation analysis of a variety of threats against the current LAIRCM jam code with the intent of determining if jam code updates are required.</p> <p>FY 2015 Accomplishments: Worked on Threat analysis in the Guided Weapon Evaluation Facility (GWEF),and Dynamic Infrared Missile Evaluation Facility (DIME)Lab.</p> <p>GWEF: Evaluated Hardware In The Loop (HITL) effectiveness for LAIRCM against a new threat; Modernized radiometer calibration station for improved field radiometer accuracy; and Improved seeker rate table characterization capability.</p> <p>DIME: Evaluated “hybrid” jam code; Provided characterization of the LAIRCM laser; Evaluated new laser technology for possible future uses; Completed development of a threat hybrid simulation; Verified operation of a threat modified to support static testing; Collected test data of modified threat to support digital model development;</p>	1.655	2.655	2.055	-	2.055

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0401134F / <i>Large Aircraft IR Countermeasures (LAIRCM)</i>
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C. Accomplishments/Planned Programs (\$ in Millions)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
completed initial characterization and countermeasure testing of the threat system; and Developed/validated the MOSAIC IRCM digital simulation system. FY 2016 Plans: Continue to work on Threat analysis in the GWEF, to include purchase of assets, and DIME Lab. FY 2017 Base Plans: Continue to work on Threat analysis in the GWEF, to include purchase of assets, and DIME Lab.					
Title: Modeling, Simulation and Emulation Testing Description: Activities that verify and validate the information obtained from threat analysis activities. FY 2015 Accomplishments: Completed numerous Modeling, Simulation and Emulation Tests. This is a continued effort from LAIRCM Development in previous years. FY 2016 Plans: Continue work in Modeling, Simulation and Emulation Tests. This is a continued effort from LAIRCM Development in previous years. FY 2017 Base Plans: Will continue to work in Modeling, Simulation and Emulation Tests. This is a continued effort from LAIRCM Development in previous years.	0.886	0.767	0.911	-	0.911
Title: Hardware/Software/Firmware Upgrades Description: Hardware/Software/Firmware Upgrades include changes of any kind to any LAIRCM hardware components/support equipment with the purpose of adding capability, features, and enhancements which do not presently exist to ensure the LAIRCM system remains viable against current and emerging threats. FY 2015 Accomplishments: N/A FY 2016 Plans:	0.000	0.121	0.207	-	0.207

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0401134F / <i>Large Aircraft IR Countermeasures (LAIRCM)</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>Changes of any kind to any LAIRCM hardware components/support equipment with the purpose of adding capability, features, and enhancements which do not presently exist to ensure the LAIRCM system remains viable against current and emerging threats.</p> <p>FY 2017 Base Plans: Will continue to make changes of any kind to any LAIRCM hardware components/support equipment with the purpose of adding capability, features, and enhancements which do not presently exist to ensure the LAIRCM system remains viable against current and emerging threats.</p>					
<p>Title: Virtual SIL Development</p> <p>Description: VSIL incrementally designs, develops, integrates, and tests software code and purchases associated infrastructure (i.e., computers, servers, COTS software, etc.) necessary to develop and implement a virtual SIL providing a critical capability for testing the LAIRCM system to ensure continued effectiveness against current and emerging threats.</p> <p>FY 2015 Accomplishments: N/A</p> <p>FY 2016 Plans: Incrementally design, develop, integrate, and test software code and purchase associated infrastructure (i.e., computers, servers, COTS software, etc.) necessary to develop and implement a virtual SIL providing a critical capability for testing the LAIRCM system to ensure continued effectiveness against current and emerging threats.</p> <p>FY 2017 Base Plans: Will continue to design, develop, integrate, and test software code and purchase associated infrastructure (i.e., computers, servers, COTS software, etc.) necessary to develop and implement a virtual SIL providing a critical capability for testing the LAIRCM system to ensure continued effectiveness against current and emerging threats.</p>	0.000	2.766	1.429	-	1.429
<p>Title: Studies and Analysis</p> <p>Description: Includes logistics, programmatic, and engineering studies and analysis activities to ensure continued system viability and sustainability and compliance with acquisition directives. These activities may include the evaluation of low cost/high payback opportunities to reduce software development/implementation</p>	2.131	0.493	0.564	-	0.564

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0401134F / <i>Large Aircraft IR Countermeasures (LAIRCM)</i>	

C. Accomplishments/Planned Programs (\$ in Millions)

cost, enhance production efficiency, and improve life cycle costs through increased reliability and reduced repair and return cost.

FY 2015 Accomplishments:

Continued the Product Support (PS) Business Case Analysis (BCA), which is a regulatory requirement to review and validate the program's overarching sustainment strategy. Initiated the Best Value IR Sensor Study which provides Headquarters Air Mobility Command (HQ AMC) with an IR sensor comparison of the current IR sensor and the newly developed advanced threat warning (ATW) sensor; purpose of analysis is to determine the best value IR sensor solution. Initiated the Virtual SIL Implementation Study which refines the virtual SIL concept into an executable program; deliverables include an implementation plan (allowing for the delivery of incremental capability) and a cost estimate. Virtual SIL reduces the amount of government furnished equipment needed for lab integration efforts and reduces overall life cycle costs associated with SIL activity.

FY 2016 Plans:

Continuation of the PSBCA, which is a regulatory requirement to review and validate the program's overarching sustainment strategy to be completed by the end of the FY. Continue the Best Value IR Sensor Study which provides Headquarters Air Mobility Command (HQ AMC) with an IR sensor comparison of the current IR sensor and the newly developed advanced threat warning (ATW) sensor; purpose of analysis is to determine the best value IR sensor solution to be completed by the end of the FY.

FY 2017 Base Plans:

Will initiate an engineering focused LAIRCM system Critical Program Information (CPI) Assessment and Review Study.

FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Accomplishments/Planned Programs Subtotals				
4.672	6.802	5.166	-	5.166

D. Other Program Funding Summary (\$ in Millions)

Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• APAF: BA05: Line Item # LAIRCM: <i>Large Aircraft Infrared Countermeasures</i>	13.159	84.335	0.000	135.801	135.801	0.000	0.000	0.000	0.000	-	-

Remarks

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force Date: February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0401134F / <i>Large Aircraft IR Countermeasures (LAIRCM)</i>
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E. Acquisition Strategy
Efforts awarded on an annual basis, exercising existing contract options, support threat analysis and system effectiveness. The LAIRCM program office partners with the Air Force Research Laboratory (AFRL) and the 782d Test Squadron to conduct threat analysis research and Modeling, Simulation, and Emulation Testing. AFRL contracts with the Guided Weapon Evaluation Facility (GWEF) to provide hardware-in-the-loop developmental test simulation capability on a level-of-effort (LOE) basis. AFRL's Dynamic Infrared Missile Evaluation (DIME) Laboratory performs threat analysis. The existing LAIRCM contract may be used to award the various study efforts.

F. Performance Metrics
Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0401134F / Large Aircraft IR Countermeasures (LAIRCM)	Project (Number/Name) 674942 / Large Aircraft Infrared Counter Measures (LAIRCM)
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
LAIRCM ETA Hardware/ Software/Firmware Upgrades	SS/TBD	NGC : Rolling Meadows, IL	-	0.000		0.121	Jun 2016	0.207	Jun 2017	0.000		0.207	Continuing	Continuing	TBD
LAIRCM ETA Virtual SIL Development	SS/TBD	NGC : Rolling Meadows, IL	-	0.000		2.766	Aug 2016	1.429	Aug 2017	0.000		1.429	Continuing	Continuing	TBD
LAIRCM ETA Studies and Analysis	Various	Various : Various	-	2.131	Feb 2015	0.493	Nov 2015	0.564	Mar 2017	0.000		0.564	Continuing	Continuing	TBD
Subtotal			-	2.131		3.380		2.200		0.000		2.200	-	-	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
LAIRCM ETA Threat Analysis/Guided Weapon Evaluation Facility	PO	GWEF : Eglin AFB, FL	-	0.700	Oct 2014	1.030	Jan 2016	1.029	Jan 2017	0.000		1.029	Continuing	Continuing	TBD
LAIRCM ETA Modeling, Simulation and Emulation Test	MIPR	AFRL/Ryf-Omni Sentinel : WPAFB, OH	-	0.361	Apr 2015	0.627	Jan 2016	0.668	Jan 2017	0.000		0.668	Continuing	Continuing	TBD
LAIRCM ETA Threat Analysis/Dynamic Infrared Missile Evaluation (DIME)	MIPR	AFRL/Ryf-DIME : WPAFB, OH	-	0.800	Jun 2015	1.120	Jan 2016	1.010	Jan 2017	0.000		1.010	Continuing	Continuing	TBD
LAIRCM ETA Threat Analysis/Repair of Test Assets	SS/T&M	Northrup Grumman : Rolling Meadows, IL	-	0.155	Jul 2015	0.080	Mar 2016	0.100	Mar 2017	0.000		0.100	Continuing	Continuing	TBD

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0401134F / Large Aircraft IR Countermeasures (LAIRCM)	Project (Number/Name) 674942 / Large Aircraft Infrared Counter Measures (LAIRCM)
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Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
LAIRCM ETA Threat Analysis/Telemetry Upgrade	PO	46 TS/OGEX : Eglin AFB, FL	-	0.000		0.225	Mar 2016	0.000		0.000		0.000	Continuing	Continuing	-
LAIRCM ETA Threat Analysis/Performance Analysis	TBD	TBD : TBD	-	0.000		0.200	Apr 2016	0.000		0.000		0.000	Continuing	Continuing	-
Subtotal			-	2.016		3.282		2.807		0.000		2.807	-	-	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
LAIRCM ETA Government Travel	Various	Government Employees : WPAFB, OH	-	0.154		0.140		0.159		0.000		0.159	Continuing	Continuing	TBD
LAIRCM ETA A&AS	C/CPFF	COLSA Corp. : Huntsville, AL	-	0.371	Mar 2015	0.000		0.000		0.000		0.000	Continuing	Continuing	TBD
Subtotal			-	0.525		0.140		0.159		0.000		0.159	-	-	-

Remarks
LAIRCM ETA A&AS: FY16 and FY17 is being funded by APAF, LAIRCM: Large Aircraft Infrared Countermeasures.

	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	4.672	6.802	5.166	0.000	5.166	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0401134F / Large Aircraft IR Countermeasures (LAIRCM)	Project (Number/Name) 674942 / Large Aircraft Infrared Counter Measures (LAIRCM)

	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Development Program and Remaining Integration	██████████																											
Threat Analysis	██████████				██████████				██████████				██████████				██████████				██████████							
Modeling , Simulation, and Emulation Testing	██████████				██████████				██████████				██████████				██████████				██████████							
Studies and Analysis: Product Support BCA	██████████				██████████																							
Studies and Analysis: Best Value IR Sensor Study					██████████																							
Studies and Analysis: Virtual SIL Implementation Study					██████████																							
Studies and Analysis: Critical Program Information Assessment and Review									██████████																			
Virtual SIL Development									██████████				██████████															
Hardware/Software/Firmware Upgrades									██████████				██████████				██████████				██████████							

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0401134F / <i>Large Aircraft IR Countermeasures (LAIRCM)</i>	Project (Number/Name) 674942 / <i>Large Aircraft Infrared Counter Measures (LAIRCM)</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Development Program and Remaining Integration	1	2015	2	2015
Threat Analysis	1	2015	4	2021
Modeling , Simulation, and Emulation Testing	1	2015	4	2021
Studies and Analysis: Product Support BCA	1	2015	2	2016
Studies and Analysis: Best Value IR Sensor Study	1	2016	3	2016
Studies and Analysis: Virtual SIL Implementation Study	4	2015	1	2016
Studies and Analysis: Critical Program Information Assessment and Review	2	2017	4	2017
Virtual SIL Development	4	2016	4	2018
Hardware/Software/Firmware Upgrades	3	2016	4	2021

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0401219F / KC-10s
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	-	2.714	1.799	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.513
675195: <i>Aircraft Modernization Program (AMP)</i>	-	2.714	1.799	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.513
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

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 enabling rapid global mobility and global strike missions. There are 59 KC-10A aircraft in the USAF tanker fleet.

The Mode 5 modification is a DoD-mandated (JROCOM 047-07, 5 Mar 07 directs KC-10 IOC by 2014, FOC by 2020) upgrade to the KC-10's Identification Friend or Foe (IFF) system (the primary means of aircraft identification, used for command and control, during Air Defense operations). The Mode 5 upgrade increases anti-spoofing capabilities and lowers the possibility of aircraft/aircrew loss due to misidentification of friendly aircraft. The modification includes a APX-119 Mode 5 capable transponder, new KIV-77 Mode 5 crypto applique replacing the KIV-119, integration into the CNS/ATM avionics with control via the Central Display Unit, removal of the existing IFF control panel, and minor wiring changes.

This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	2.714	1.799	0.000	0.000	0.000
Current President's Budget	2.714	1.799	0.000	0.000	0.000
Total Adjustments	0.000	0.000	0.000	0.000	0.000
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	0.000	0.000	0.000

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0401219F / KC-10s
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
Title: Mode 5 Description: DoD-mandated upgrade to the IFF system to increase anti-spoofing and exploitation capabilities and lower the possibility of aircraft/aircrew loss due to misidentification of friendly aircraft. FY 2015 Accomplishments: Engineering design and analysis effort to include upgrade of APX-119 transponder with Mode 5 capability, integration with CNS/ATM control panel, and replaces KIV-119 with KIV-77. FY 2016 Plans: Engineering design and analysis effort to include upgrade of APX-119 transponder with Mode 5 capability, integration with CNS/ATM control panel, and replaces KIV-119 with KIV-77.	2.714	1.799	-
Accomplishments/Planned Programs Subtotals	2.714	1.799	-

D. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u> <u>Base</u>	<u>FY 2017</u> <u>OCO</u>	<u>FY 2017</u> <u>Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• APAF:BA05:Line Item #C01000: KC-10A (ATCA)	77.513	5.611	4.570	0.000	4.570	3.502	4.704	4.784	3.404	0.000	104.088

Remarks

E. Acquisition Strategy
The acquisition strategy will be a sole source 18-month RDT&E effort followed by procurement of kits and modification of fleet.

F. Performance Metrics
Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force												Date: February 2016				
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)								
3600 / 7				PE 0401219F / KC-10s				675195 / Aircraft Modernization Program (AMP)								
Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Mode 5 IFF EMD	SS/FFP	Rockwell Collins : Cedar Rapids, IA	-	2.514	Sep 2015	1.311	Jan 2016	0.000		0.000		0.000	0.000	3.825	3.825	
Subtotal			-	2.514		1.311		0.000		0.000		0.000	0.000	3.825	3.825	
Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Subtotal			-	-		-		-		-		-	-	-	-	
Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Gov Test and Evaluation (Mode 5)	Various	Contract Crew, AMC/TE, FAA : McGuire AFB, NJ	-	0.000		0.288	Jul 2016	0.000		0.000		0.000	0.000	0.288	0.288	
Subtotal			-	0.000		0.288		0.000		0.000		0.000	0.000	0.288	0.288	
Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Mode 5 Mission Support	C/CPAF	Various : Tinker AFB, OK	-	0.200	Mar 2015	0.200	Mar 2016	0.000		0.000		0.000	0.000	0.400	0.400	
Subtotal			-	0.200		0.200		0.000		0.000		0.000	0.000	0.400	0.400	
Project Cost Totals			-	2.714		1.799		0.000		0.000		0.000	0.000	4.513	4.513	

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0401219F / KC-10s	Project (Number/Name) 675195 / Aircraft Modernization Program (AMP)

	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Mode 5 EMD Contract Award				■																								
Mode 5 EMD				■	■	■	■	■	■	■	■	■																
Mode 5 Production of Kits									■	■	■	■	■	■	■	■												
Mode 5 Kit Installation													■	■	■	■												

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0401219F / KC-10s	Project (Number/Name) 675195 / Aircraft Modernization Program (AMP)

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Mode 5 EMD Contract Award	4	2015	4	2015
Mode 5 EMD	4	2015	2	2017
Mode 5 Production of Kits	1	2017	1	2018
Mode 5 Kit Installation	1	2018	4	2018

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0401314F / <i>Operational Support Airlift</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	0.000	27.783	46.453	13.817	0.000	13.817	6.662	0.000	0.000	0.000	0.000	94.715
676024: <i>VC-25 Avionics Modernization Program</i>	0.000	27.783	46.453	13.817	0.000	13.817	6.662	0.000	0.000	0.000	0.000	94.715
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Program MDAP/MAIS Code: 425

A. Mission Description and Budget Item Justification

VC-25A Avionics Modernization Program (AMP) assures unrestricted global access to civilian and military airspace to support the President of the United States as Head of State, Chief Executive, and Commander in Chief. AMP upgrades use a systems approach to aid pilot awareness and alleviate task saturation enhancing safety in a high technology concentrated airspace environment. VC-25A AMP is a required modification to ensure the viability of the Presidential support airlift fleet until the Presidential Aircraft Recapitalization (PAR) program is fielded.

AMP complies with mandates for civil Automatic Dependent Surveillance-Broadcast (ADS-B) Out and Identification Friend or Foe (IFF) Mode 5 and provides an improved Advisory Vertical Navigation (VNAV) capability. It will incorporate multiple subsystems, to include, but not limited to, maneuver camera system, large cockpit displays, and navigation radios to increase the utility and safety of the VC-25A. Provisions for the military ADS-B Out will also be provided. Installations are aligned with the aircraft heavy maintenance schedule.

B. Program Change Summary (\$ in Millions)

	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>
Previous President's Budget	27.784	48.453	16.155	0.000	16.155
Current President's Budget	27.783	46.453	13.817	0.000	13.817
Total Adjustments	-0.001	-2.000	-2.338	0.000	-2.338
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	-2.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	-0.001	0.000	-2.338	0.000	-2.338

Change Summary Explanation

The FY2016 funding was reduced by \$2 million due to a Congressionally directed reduction for forward financing.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0401314F / <i>Operational Support Airlift</i>
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The FY 2017 funding request was reduced by \$2.338 million to account for the updated Heavy Maintenance schedule.

C. Accomplishments/Planned Programs (\$ in Millions)

	FY 2015	FY 2016	FY 2017
Title: Design and Test	27.783	46.453	13.817
Description: Design and Test efforts included stand-up of a Systems Integration Laboratory (SIL), non-recurring engineering, material buys for the SIL, as well as design, test and evaluation, and installation of the avionics systems. All modifications to be performed on the aircraft must be proven on the ground prior to installation.			
FY 2015 Accomplishments: Funding was used for continuing non-recurring engineering, material buys and Critical Design Review (CDR). SIL engineering and test continued for Flight Management System (FMS) software.			
FY 2016 Plans: Funding will be used for material buys, Install kit, Ground Test and Flight Test.			
FY 2017 Plans: Funding will be used for Installation, Ground Test and Flight Test.			
Accomplishments/Planned Programs Subtotals	27.783	46.453	13.817

D. Other Program Funding Summary (\$ in Millions)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• APAF: BA05: Line Item #C02500: VC-25A	0.000	0.000	0.000	0.000	0.000	26.730	0.000	0.000	0.000	0.000	145.039

Remarks

E. Acquisition Strategy

VC-25A AMP is accomplished by developmental integration of commercial off-the-shelf systems, hardware procurement and installation is accomplished to align with heavy maintenance depot schedules. An Undefinitized Contract Action (UCA) was issued in Jun 12. The UCA was definitized with a Cost Plus Incentive Fee (CPIF) type contract April 2014. The CPIF contract covers the engineering RDT&E effort through Critical Design Review in FY15. The remaining RDT&E effort including the first kit, install and flight test was awarded in FY15 and concludes in FY18 with delivery of the first aircraft.

F. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0401314F / <i>Operational Support Airlift</i>	Project (Number/Name) 676024 / <i>VC-25 Avionics Modernization Program</i>
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
VC-25 AMP Engineering	SS/CPIF	Oklahoma City : Tinker, AFB, OK	0.000	26.783	Feb 2015	45.453	Feb 2016	12.817	Feb 2017	0.000		12.817	0.000	85.053	-
Subtotal			0.000	26.783		45.453		12.817		0.000		12.817	0.000	85.053	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
VC-25 AMP Program Management Activities	SS/CPIF	OC-ALC : Oklahoma City, OK	0.000	1.000	Jan 2015	1.000	Jan 2016	1.000	Jan 2017	0.000		1.000	0.000	3.000	-
Subtotal			0.000	1.000		1.000		1.000		0.000		1.000	0.000	3.000	-

			Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			0.000	27.783	46.453	13.817	0.000	13.817	0.000	88.053	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0401314F / <i>Operational Support Airlift</i>	Project (Number/Name) 676024 / <i>VC-25 Avionics Modernization Program</i>

	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Systems Integration Laboratory engineering	██████████																											
Critical Design Review			██																									
Kit #1 Procurement				██████████																								
Kit #1 Installation									██████████	██████████	██████████	██████████																
Test and Evaluation													██████████	██████████	██████████	██████████												

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0401314F / <i>Operational Support Airlift</i>	Project (Number/Name) 676024 / <i>VC-25 Avionics Modernization Program</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Systems Integration Laboratory engineering	1	2015	2	2016
Critical Design Review	3	2015	3	2015
Kit #1 Procurement	4	2015	4	2016
Kit #1 Installation	1	2017	4	2018
Test and Evaluation	2	2017	4	2018

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0401318F / CV-22
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	0.000	37.698	27.776	16.702	0.000	16.702	17.455	16.634	14.724	14.984	74.005	219.978
676033: <i>CV-22 RDT&E POST PRODUCTION</i>	0.000	37.698	27.776	16.702	0.000	16.702	17.455	16.634	14.724	14.984	74.005	219.978
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Program MDAP/MAIS Code: 212
Project MDAP/MAIS Code(s): N42

A. Mission Description and Budget Item Justification

The CV-22 is the Air Force Special Operations Forces (SOF) variant of the joint multi-mission V-22 tilt-rotor aircraft. The aircraft provides long-range infiltration, exfiltration, and re-supply of SOF in politically sensitive and hostile/denied areas. The Navy is the lead service for the joint V-22 program and has overall responsibility for managing all V-22 variants, including the Air Force CV-22 variant. CV-22 RDT&E funding provides for the development, integration, and testing of mission critical aircraft modifications to improve operational effectiveness, platform survivability, and aircraft availability.

Block 20: RDT&E funding provides for improved long-range communications, situational awareness capabilities, and aircraft software upgrades needed to address operational requirements specified in the V-22 Block C/20 Capabilities Production Document (CPD).

Enhanced Self-Deployment: RDT&E funding provides for the design, development, and testing of aircraft modifications to improve aircraft self-deployment capabilities (e.g., operating range, global response time), to evaluate emerging threats to the aircraft and mission accomplishment, and to identify and assess emerging air vehicle, propulsion system, avionics, electronic warfare, and weapon system capability requirements and potential solutions to satisfy these requirements.

Improved Inlet Solution (IIS): RDT&E funding provides for design, development, and testing of modifications to the CV-22 propulsion system to reduce ingestion of sand/dust and other particulate matter in austere operating environments. These upgrades will significantly improve Engine Time on Wing (ETOW) and overall aircraft readiness/availability, and reduce platform operating/life cycle costs.

Communications, Navigation, Surveillance/Air Traffic Management (CNS/ATM): RDT&E funding provides for upgrades and enhancements to the CV-22 navigation, flight management, and aircraft Identification Friend or Foe (IFF) systems that will bring the aircraft into compliance with Federal Aviation Administration (FAA) and international mandates and other technical guidance for access to, and operations within worldwide airspace.

Other/Future Capabilities: The V-22 Joint Program Office continually assesses user-specified requirements for improved operational safety, suitability, and mission effectiveness. Funding also provides for future modification planning, and for aircraft engineering changes/upgrades to address diminishing manufacturing source (DMS) and component obsolescence issues that adversely affect aircraft readiness and operational availability rates.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0401318F / CV-22
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Unites States Special Operations Command (USSOCOM) and the Air Force (AF) jointly fund many CV-22 development projects. USSOCOM funds the development, integration, and testing of SOF-unique mission equipment and capabilities, while the AF funds service-common/basic air vehicle enhancements, CV-22 implementation, and testing of MV-22 configuration changes, the integration of Air Force and Navy maintenance and information systems used with the CV-22, and support for aircraft qualification and operational testing. USSOCOM and AF jointly fund corrective measures for identified aircraft deficiencies, and for Block 20 development. Block 20 Increments 1 and 3 were developed with AF funds, and Increment 2 was developed with USSOCOM funds.

This program is in Budget Activity 7, Operational Systems Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

The FY2017 funding request was reduced by \$0.667 million to account for the availability of prior year execution balances.

B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	38.719	36.576	17.369	0.000	17.369
Current President's Budget	37.698	27.776	16.702	0.000	16.702
Total Adjustments	-1.021	-8.800	-0.667	0.000	-0.667
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	-8.800			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-1.021	0.000			
• Other Adjustments	0.000	0.000	-0.667	0.000	-0.667

Change Summary Explanation

FY15: The FY2015 funding was reduced by \$1.021 million for Small Business Innovative Research.

FY16: The FY2016 funding was reduced by \$8.8 million due to a Congressionally directed reduction for Improved inlet solution delay.

FY17: The FY2017 funding request was reduced by \$0.667 million to account for the availability of prior year execution balances.

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: CV-22 Block 20 RDT&E	15.113	0.000	0.000	0.000	0.000

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0401318F / CV-22
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>Description: Develop, test, and evaluate additional capabilities for the CV-22 aircraft. The V-22 Joint Program Office is developing improved operational safety, suitability, and effectiveness configuration changes. Block 20 development includes improved communications capabilities, aircraft software improvements, and other requirements specified in the V-22 Block C/20 CPD.</p> <p>FY 2015 Accomplishments: Conducted Beyond Line of Sight (BLOS) communications system ground and flight testing. Flight testing continues through 1Q/FY2017.</p> <p>FY 2016 Plans: N/A</p> <p>FY 2017 Base Plans: N/A</p> <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: Enhanced Self-Deployment Capabilities</p> <p>Description: Incrementally develops capabilities to enhance self-deployment capabilities, such as improved ice protection, engine performance, engine infrared suppression, navigation, communications, and battle space awareness/networking capabilities; electronic warfare; weapons systems; defensive avionics systems; weight reduction initiatives; and changes to the underlying aircraft systems necessary to enable these capabilities. The enhanced self-deployment capabilities major thrust contains funding for initial risk reduction and trade studies that may impact other existing major thrusts, or result in new major thrusts.</p> <p>FY 2015 Accomplishments: Conducted risk reduction and assessment of emerging operational capability requirements and existing technologies/solutions. Conducted crew system design, developed display interface document, updated system interface control document, and conducted System Readiness Review (SRR) to incorporate a new Directional Infrared Countermeasure (DIRCM) signal processor and Advanced Threat Warning (ATW) missile warning sensors in response to requirements in a USSOCOM Joint Urgent Operational Need (JOUN).</p> <p>FY 2016 Plans:</p>	15.501	17.180	5.182	0.000	5.182

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force				Date: February 2016	
Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>		R-1 Program Element (Number/Name) PE 0401318F / CV-22			
C. Accomplishments/Planned Programs (\$ in Millions)					
Conduct risk reduction and assessment of emerging and existing technologies (e.g., weapon systems, improved engine performance, and weight reduction initiatives). Conduct design/development activities to integrate an Intelligence Broadcast Receiver (IBR) upgrade (obsolescence issue). Conduct preliminary design review (PDR) and critical design review (CDR) for ATW sensors; and conduct developmental test and evaluation (DT&E) and operational test and evaluation (OT&E).					
FY 2017 Base Plans: Conduct risk reduction and assessment of emerging and existing technologies. Continue design and development activities to integrate the IBR upgrade, and identify/assess potential solutions for an engine infrared suppression modification/redesign to improve maintainability and aircraft availability.					
FY 2017 OCO Plans: N/A					
Title: Improved Inlet Solution (IIS)					
Description: Provides for modifications to the CV-22 propulsion system to reduce sand/dust and other particulate matter ingestion, increase engine time on wing and overall aircraft readiness/availability rates, and reduce operations and support costs. This is Air Force Special Operations Command's #1 modification priority for the CV-22 weapon system.					
IIS is a joint V-22 effort being developed in conjunction with the Department of the Navy.					
FY 2015 Accomplishments: Continued design and development activities. Completed PDR and conducted CDR. Purchased instrumentation for flight test aircraft.					
FY 2016 Plans: Continue design and development. Conduct post-CDR development activities. Conduct wind tunnel icing testing, develop hardware for test aircraft, and develop/deliver Joint Avionics Software Suite (JASS) software for DT&E.					
FY 2017 Base Plans: Conduct Test Readiness Review (TRR), modify test aircraft, start DT&E, and assess aircraft software changes.					
FY 2017 OCO Plans:					
	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
	7.084	10.596	10.294	0.000	10.294

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force / BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0401318F / CV-22
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
N/A					
Title: Communication, Navigation, Surveillance / Air Traffic Management Description: Provides for improvements to current navigation, flight management, and IFF systems that will bring the CV-22 into compliance with U.S. and international mandates and other technical guidance for continued access to, and interoperability with worldwide airspace. CNS/ATM is a joint V-22 effort being developed in conjunction with the Department of the Navy. FY 2015 Accomplishments: N/A FY 2016 Plans: N/A FY 2017 Base Plans: Conduct JASS and display software development SRR. FY 2017 OCO Plans: N/A	0.000	0.000	1.226	0.000	1.226
Accomplishments/Planned Programs Subtotals	37.698	27.776	16.702	0.000	16.702

D. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• RDT&E, DW: BA07: PE 1160403BB: <i>Special Operations, Aviation Systems</i>	0.176	0.000	15.590	0.000	15.590	14.259	21.635	4.961	0.000	0.000	59.438
• PDW: BA02: Line Item Special Ope...: <i>CV-22 Modification</i>	21.578	33.582	19.008	0.000	19.008	34.878	23.124	21.336	21.763	337.937	2,103.126
• APAF: BA04: Line Item #V022A0: <i>CV-22 (MYP)</i>	15.000	64.500	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4,310.929
• APAF: BA05: Line Item #V02200: <i>CV-22 Mods</i>	74.874	58.603	63.395	0.000	63.395	65.892	68.843	70.825	72.131	345.301	890.270

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force / BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0401318F / CV-22
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D. Other Program Funding Summary (\$ in Millions)

Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• APAF: BA07; Line Item # C0V220: <i>CV-22 Post-Production Support</i>	16.931	3.353	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	20.284
• RDT&E,N: BA05: PE 0604262N: V-22A	50.188	76.483	174.423	0.000	174.423	145.342	97.583	64.184	67.500	209.793	9,963.512

Remarks

In addition to the funding identified in the table above, prior year funding includes \$520.411 in RDT&E, DW, BA07, PE 1160421BB: Special Operations, CV-22 Development, and \$413.235M in RDT&E, AF, BA05, PE 0401318F: CV-22

E. Acquisition Strategy

The V-22 Joint Program Office (Naval Air Systems Command (NAVAIRSYSCOM), PMA-275) is developing new capabilities for the V-22 in block increments. Block 0 and Block 10 have been developed & fielded, and Block 20 development is scheduled to complete 31 Dec 2016.

--Improved Inlet Solution: NAVAIRSYSCOM awarded a cost plus fixed fee contract for IIS development and test in June 2014 with BA05 funds. After FY14, BA07 funds continue this effort. The FY2017 plan is to add incremental funding to the established contract.

--CNS/ATM: Development will be contracted with Raytheon and Bell-Boeing. The Raytheon effort will be contracted sole source on a delivery order to an existing Indefinite Delivery Indefinite Quantity (IDIQ) contract. The Bell-Boeing effort will be contracted sole source on a delivery order to an existing basic ordering agreement (BOA).

--Enhanced Self-Deployment Capabilities: The FY2017 plan is to order studies and analyses sole source from Bell-Boeing on an established BOA.

Development activities for the V-22 program are performed primarily by the prime contractor, Bell-Boeing, selected on a sole-source basis. Bell-Boeing is a strategic partnership between Bell Helicopter and Boeing Integrated Defense Systems. Efforts are underway to increase competition where feasible, depending primarily on the level of platform integration required.

F. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force											Date: February 2016				
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0401318F / CV-22					Project (Number/Name) 676033 / CV-22 RDT&E POST PRODUCTION				

Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
CV-22 Osprey Block 20 Development	SS/CPFF	Bell Boeing : Amarillo, TX	0.000	6.905	Apr 2015	0.000		0.000		0.000		0.000	0.000	6.905	162.279
CV-22 Osprey Enhanced Self-deployment Capability	Various	Various : Various	0.000	15.501	Sep 2015	16.970	Mar 2016	2.000	Mar 2017	0.000		2.000	62.881	97.352	0.000
V-22 Osprey Improved Inlet Solution (IIS)	SS/CPFF	Bell Boeing : Amarillo, TX	0.000	7.084	May 2015	7.476	Mar 2016	10.294	Dec 2016	0.000		10.294	6.209	31.063	69.660
V-22 Osprey CNS/ATM	SS/CPFF	Various : Various	0.000	0.000		0.000		1.226	Mar 2017	0.000		1.226	18.774	20.000	TBD
Subtotal			0.000	29.490		24.446		13.520		0.000		13.520	87.864	155.320	-

Remarks

Block 20 Development Target Value of Contract differs from total cost because most of the Block 20 development cost was funded in PE 0401318F, BA05. In addition, the SOF peculiar development efforts were funded by USSOCOM MFP-11 funding.

IIS Development Target Value of Contract differs from total cost because this is a joint development funded by Navy and Air Force. Navy funding for IIS is shown in RDT&E,N PE 0604262N budget exhibit.

Prior Years funding (\$322.656M) was executed in PE 0401318F, BA05.

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
CV-22 Osprey Engineering Technical Support	Various	Various : Various	0.000	1.728	Apr 2015	2.100	Dec 2015	1.835	Mar 2017	0.000		1.835	23.821	29.484	0.000
Subtotal			0.000	1.728		2.100		1.835		0.000		1.835	23.821	29.484	0.000

Remarks

Prior Years Funding \$40.454M was executed in PE 0401318F (BA05).

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0401318F / CV-22	Project (Number/Name) 676033 / CV-22 RDT&E POST PRODUCTION
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Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
CV-22 Osprey Test & Evaluation Technical Support	Various	Various : Various	0.000	5.777	Nov 2014	1.027	Mar 2016	1.115	Dec 2016	0.000		1.115	15.622	23.541	0.000
Subtotal			0.000	5.777		1.027		1.115		0.000		1.115	15.622	23.541	0.000

Remarks
Prior Years Funding \$46.764M was executed in PE 0401318F (BA05).

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
CV-22 Osprey PMA/Travel	Allot	AFLCMC/WIV : Patuxent River, MD	0.000	0.703	Nov 2014	0.203	Nov 2015	0.232	Nov 2016	0.000		0.232	10.495	11.633	-
Subtotal			0.000	0.703		0.203		0.232		0.000		0.232	10.495	11.633	-

Remarks
Prior Years Funding \$3.361M was executed in PE 0401318F (BA05).

	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	37.698	27.776	16.702	0.000	16.702	137.802	219.978	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0401318F / CV-22	Project (Number/Name) 676033 / CV-22 RDT&E POST PRODUCTION

FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

Block 20 Increment 3 Development, Test and Evaluation																								
-- Long range comm upgrades ground and flight test																								
Enhanced Self Deployment																								
-- Risk Reduction Analysis (Multiple current and future development initiatives)																								
-- ATW development and testing																								
-- IBR design and development																								
Improved Inlet Solution																								
-- IIS development and design reviews																								
-- IIS ground and flight test																								
CNS/ATM																								
-- Required navigation performance/area navigation (RNP/RNAV) development and design reviews																								
-- RNP/RNAV ground and flight tests																								

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0401318F / CV-22	Project (Number/Name) 676033 / CV-22 RDT&E POST PRODUCTION

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Block 20 Increment 3 Development, Test and Evaluation	1	2015	1	2017
-- Long range comm upgrades ground and flight test	1	2015	1	2017
Enhanced Self Deployment	1	2015	4	2021
-- Risk Reduction Analysis (Multiple current and future development initiatives)	1	2015	4	2021
-- ATW development and testing	4	2015	1	2017
-- IBR design and development	2	2016	1	2018
Improved Inlet Solution	1	2015	4	2018
-- IIS development and design reviews	1	2015	4	2016
-- IIS ground and flight test	1	2017	4	2018
CNS/ATM	2	2017	4	2021
-- Required navigation performance/area navigation (RNP/RNAV) development and design reviews	2	2017	4	2019
-- RNP/RNAV ground and flight tests	3	2019	4	2021

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force / BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0408011F / <i>Special Tactics / Combat Control</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	-	8.081	7.929	7.164	0.000	7.164	8.067	8.116	8.267	8.414	Continuing	Continuing
675138: <i>ST System Development</i>	-	8.081	7.929	7.164	0.000	7.164	8.067	8.116	8.267	8.414	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Special Tactics (ST) System Development project focuses on modernization development for the Battlefield Air Operations (BAO) Kit. The project is a program within the overarching Battlefield Airmen Modernization (BA-Mod) Program. BAO Kit will develop, test, train and modernize the existing and future System of Systems (SoS) that provide a state-of-the-art Command, Control, Communications, Computer, Intelligence, Surveillance and Reconnaissance (C4ISR) capability. It also provides a suite of systems for all Air Force Specialty Codes supporting the ST community within the Air Force Special Operations Command's (AFSOC's) Battlefield Airmen. Efforts in the ST System Development project focus on reducing the risk of fratricide and substantially reducing size and weight of the equipment carried through three core capabilities: Human Machine Interface (HMI), Line of Sight (LOS) targeting, and Machine to Machine (M2M) C4ISR System and all other ST capability needs.

This program will develop and enhance technologies for Battlefield Airmen ST operators to recognize, identify, range, nominate, and designate targets during both day and night operations. BAO Kit will also significantly reduce the time required to find, track, fix targets, 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. FY17 BAO Kit funding will provide significant improvements in operational capability, situational awareness, and precision lethality in the battle space and while continuing to build and enhance the BAO Kit system of systems. This may be conducted through industry technology demonstrations, prototypes, and associated engineering support to posture the BAO Kit for technology insertion. These efforts will deliver enhanced capability for the dismounted soldier in terms of dramatic weight reduction and increased mission effectiveness across the conflict spectrum. BAO also supports AFSOC TAC C2 programs to develop and enhance communication systems and equipment essential for ST combat controllers, pararescue, combat weather operators, and tactical air control parties within AFSOC to perform their mission. The ST operators use this equipment to gather and transmit assault zone suitability and weather data and to perform tactical airfield/assault landing/drop zone operations.

The Special Tactics (ST) System Development activities also include studies and analysis to support both current and future program planning and execution.

This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force / BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0408011F / <i>Special Tactics / Combat Control</i>
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B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	8.312	7.963	8.046	0.000	8.046
Current President's Budget	8.081	7.929	7.164	0.000	7.164
Total Adjustments	-0.231	-0.034	-0.882	0.000	-0.882
• Congressional General Reductions	0.000	-0.034			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-0.231	0.000			
• Other Adjustments	0.000	0.000	-0.882	0.000	-0.882

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
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<p>Title: Human Machine Interface</p> <p>Description: HMI is a system of systems that provides integrated operator interface between all the machine components by using unified visual and auditory displays and controls, such as head-mounted displays, tactical earplug connectivity with man pack or handheld communications, integrated tactical computing solution, and power generation and management systems.</p> <p>FY 2015 Accomplishments:</p> <ul style="list-style-type: none"> - Developed and tested special tactics integrated combat system. - Developed alternative energy and power capabilities to support special tactics mission sets and mission durations. - Handheld Link-16: Continued development in the handheld form factor enabling the legacy waveform to be utilized by the operators in the field. - Spectrum Management: Continued research, test and analysis of waveform usage as they evolve. - Communications Development: Continued upgrading HMI efforts which reduced the SWAP (Size, Weight and Power)required to be carried by the Special Tactics Community. <p>FY 2016 Plans:</p> <ul style="list-style-type: none"> - Continue to develop and implement Mobile User Objective System (MUOS) compatibility waveform features, which will allow the DoD to operate without the dependency of civilian SATCOM services. 	2.814	3.611	2.933	0.000	2.933
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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force / BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0408011F / <i>Special Tactics / Combat Control</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
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- Handheld Link-16 receiver/transmitter development will continue enabling the legacy waveform to be utilized by operators in the field.
- Enhance Web-based Geographic Information System (GIS) management tools, which are used to store, display, update, and report operational information on sensitive global airfields and Assault Zones (AZ) while incorporating approval processes designed to support rapid Global Mobility missions for the USG.
- Secure Personal Area Network (PAN). The PAN is a development effort that will reduce SWAP by eliminating ancillary cables. The PAN requirement is to have secure wireless communication connections between the BAO Kit and items such as radios.
- GPS technology thrust. There is a development effort with the current radio vendor to develop and implement a radio software enhancement that will push the internal GPS signal to the BAO Kit computer.
- Wireless technology: Explore future wireless Bluetooth/Blacktooth encrypted data communication for the Special Tactics community
- Communications Development: Will continue upgrading HMI efforts which reduced the SWAP (Size, Weight and Power)required to be carried by the Special Tactics Community.

FY 2017 Base Plans:

- Will continue to develop and implement Mobile User Objective System (MUOS) compatibility waveform features which will allow the DoD to operate without the dependency of civilian SATCOM services.
- Handheld Link-16 receiver/transmitter will be a focus for the dismounted operator and interaction with next generation aircraft. Capability supports digitally aided combat air support operations.
- Will continue to Explore Body Wearable Antenna development to reduced exposure to Battlefield Airmen in the field whose unique equipment makes CCT/TACPs appear different than their peers.
- Will continue to explore and define requirements for implementation of the Iridium waveform granting DoD dedicated airtime.
- Communications Development: Will continue upgrading HMI efforts which reduced the SWAP (Size, Weight and Power) required to be carried by the Special Tactics Community. Specifically includes wireless technology.

FY 2017 OCO Plans:
N/A

<p>Title: Line of Sight</p> <p>Description: Line of Sight-Short targeting enables the ST Battlefield Airmen to find, fix, track, target and, engage the enemy at close range during day or night operations by providing highly accurate target coordinates</p>	0.481	0.000	0.500	0.000	0.500
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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force / BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0408011F / <i>Special Tactics / Combat Control</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
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in three dimensions. Line of Sight – Short generates vital imagery both pre and post-strike at a fraction of the weight and is more efficient than legacy equipment carried by the operator.

FY 2015 Accomplishments:
 - Developed and enhanced three in one target/geo-locate/designate capability for dismounted operations.
 - Contractor continued development into FY 16 using FY 15 funds for tech maturation.

FY 2016 Plans:
 N/A

FY 2017 Base Plans:
 - Non Line of sight (XLOS) targeting device exploration and development which will capture future capabilities to the Special Tactics community.

FY 2017 OCO Plans:
 N/A

Title: Machine to Machine C4ISR System	4.786	4.318	3.731	0.000	3.731
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Description: A suite of map-centric software applications that enables M2M transfer of precision targeting, information management, C4ISR and Situational Awareness (SA) information. Provides the ST Battlefield Airmen the ability to find, fix, track, target and engage the enemy which greatly reduces the kill chain and drastically decreases the possibility of fratricide by enhancing the operator's situational awareness on the battlefield.

FY 2015 Accomplishments:
 - Developed and tested material prototypes of M2M interfaces for C4ISR; enhanced target mensuration, increasing precision strike capabilities, enabling a reduced kill chain and increase in speed of effects and lethality.
 - Continued critical tactical data link implementation, increased digital communication and situational awareness capabilities.
 - Mapping engine optimization: provided greater battlefield situational awareness while engaged with the enemy.
 - Incorporated Low Probability of Detection (LPD) communications for near peer adversaries in the Anti-Access Area-Denial (A2AD) environment.
 - Increased interoperability with land and sea based fire systems.

FY 2016 Plans:

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force / BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0408011F / <i>Special Tactics / Combat Control</i>
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C. Accomplishments/Planned Programs (\$ in Millions)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
-Will continue to develop and test material prototypes of M2M interfaces for C4ISR; investigate alternate operating systems and application development. - Will continue development of 5th Generation fighter integration, exploration of Net Enabled Weapons (NEW) employment; exploration of wireless and Bluetooth technologies to reduce the Size, Weight and Power of the system reducing operator load. - Will continue exploitation of two-way Video Data Link capability, increasing interoperability, incorporation of theatre level intelligence systems. FY 2017 Base Plans: - Will develop and test material prototypes to include market survey of M2M graphical user interfaces (GUI) for C4ISR. - Investigate alternate operating systems (OS), such as Android OS, and application development as required by the user to support urgent combat mission needs and requirements; continued 5th Generation fighter integration; exploration of Net Enabled Weapons (NEW) employment. - Exploration and development of wireless technology to reduce the Size, Weight and Power of the system reducing operator load. -Exploitation of two-way encrypted Video Data Link and Network capability, which will increase interoperability, by incorporating theater level intelligence systems by providing SA to the war fighter. FY 2017 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	8.081	7.929	7.164	0.000	7.164

D. Other Program Funding Summary (\$ in Millions)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• OPAF: BA03: Line item #837100: <i>Tactical C-E Equipment</i>	16.520	31.107	15.133	0.000	15.133	15.377	15.428	15.914	16.200	Continuing	Continuing

Remarks

E. Acquisition Strategy

BAO Kit is executing an incremental development of Communications and Machine to Machine (M2M) Software. Development will include system engineering, design, integration and fielding support for M2M and IDIQ (Communications) upgrades. Wright Patterson AFB, OH manages the contract effort.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity

3600: *Research, Development, Test & Evaluation, Air Force / BA 7: Operational Systems Development*

R-1 Program Element (Number/Name)

PE 0408011F / *Special Tactics / Combat Control*

F. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force												Date: February 2016			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
3600 / 7				PE 0408011F / <i>Special Tactics / Combat Control</i>				675138 / <i>ST System Development</i>							
Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Human Machine Interface (HMI)	C/Various	Various : Various	-	2.814	Jan 2015	3.611	Oct 2015	2.933	Oct 2016	0.000		2.933	Continuing	Continuing	-
Line of Sight	C/FPIF	Argon ST, Inc : Orlando, FL	-	0.481	Oct 2014	0.000		0.500	Apr 2017	0.000		0.500	Continuing	Continuing	-
Machine-To-Machine Software Development	C/CPFF	Systems Research & Applications Corp : Dayton, OH	-	3.966	Oct 2014	4.167	Oct 2015	3.231	Oct 2016	0.000		3.231	Continuing	Continuing	-
Subtotal			-	7.261		7.778		6.664		0.000		6.664	-	-	-
Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			-	-		-		-		-		-	-	-	-
Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Test Agency Support	Various	46 TS : Eglin AFB, FL	-	0.820	Oct 2014	0.151	Oct 2015	0.500	Oct 2016	0.000		0.500	Continuing	Continuing	-
Subtotal			-	0.820		0.151		0.500		0.000		0.500	-	-	-
Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			-	-		-		-		-		-	-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force								Date: February 2016		
Appropriation/Budget Activity 3600 / 7				R-1 Program Element (Number/Name) PE 0408011F / <i>Special Tactics / Combat Control</i>			Project (Number/Name) 675138 / <i>ST System Development</i>			
	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract	
Project Cost Totals	-	8.081	7.929	7.164	0.000	7.164	-	-	-	

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0408011F / <i>Special Tactics / Combat Control</i>	Project (Number/Name) 675138 / <i>ST System Development</i>

FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

Human Machine Interface (HMI)	[Redacted]																											
Line of Sight (LOS)	[Redacted]																											
Machine to Machine C4ISR System	[Redacted]																											

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0408011F / <i>Special Tactics / Combat Control</i>	Project (Number/Name) 675138 / <i>ST System Development</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Human Machine Interface (HMI)	1	2015	4	2021
Line of Sight (LOS)	1	2015	4	2021
Machine to Machine C4ISR System	1	2015	4	2021

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0702207F / <i>Depot Maintenance (Non-IF)</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	-	1.407	1.525	1.518	0.000	1.518	1.523	1.498	1.526	1.553	Continuing	Continuing
673326: <i>Precision Measurement & Calibration</i>	-	1.407	1.525	1.518	0.000	1.518	1.523	1.498	1.526	1.553	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

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.

Program is managed by Air Force Materiel Command, Agile Combat Support Directorate, Air Force Metrology Division (WNM).

This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0702207F / <i>Depot Maintenance (Non-IF)</i>
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B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	1.407	1.525	1.533	0.000	1.533
Current President's Budget	1.407	1.525	1.518	0.000	1.518
Total Adjustments	0.000	0.000	-0.015	0.000	-0.015
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	-0.015	0.000	-0.015

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
<p>Title: Weapons Systems Measurement Standards</p> <p>Description: Continue development of national measurement standards to support Air Force infrared / laser / electro-optical weapon systems and support equipment.</p> <p>FY 2015 Accomplishments: Continued project development in support of infrared/laser/electro-optical weapon systems.</p> <p>FY 2016 Plans: Project development continues on infrared/laser/electro-optical weapon system support.</p> <p>FY 2017 Plans: Will continue project development on infrared/laser/electro-optical weapon system support.</p>	0.440	0.565	0.558
<p>Title: Electrical Measurements</p> <p>Description: Continue development of standards for electrical measurements to support high accuracy electronic test equipment.</p> <p>FY 2015 Accomplishments: Continued developing radar support standards, RF communication systems and radar cross section range through development process.</p> <p>FY 2016 Plans:</p>	0.396	0.000	0.000

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force		Date: February 2016		
Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>		R-1 Program Element (Number/Name) PE 0702207F / <i>Depot Maintenance (Non-IF)</i>		
C. Accomplishments/Planned Programs (\$ in Millions)		FY 2015	FY 2016	FY 2017
Continuing to develop radar support standards, RF communication systems and radar cross section range through development process. FY 2017 Plans: N/A				
Title: Radar Support/Communications Description: Continue development of standards for radar support, RF communication systems, and radar cross section range measurements. FY 2015 Accomplishments: Development of radar support standards, RF communication systems and radar cross section range continued through development process. FY 2016 Plans: Development of radar support standards, RF communication systems and radar cross section range will continue through development process. FY 2017 Plans: Development of radar support standards, RF communication systems and radar cross section range will continue through development process.		0.085	0.300	0.300
Title: Calibration Description: Continue the development of improved calibration standards to support physical, mechanical, and electro-mechanical support equipment. FY 2015 Accomplishments: Calibration standards which support physical, mechanical and electro-mechanical support equipment were developed to meet ever changing technology. FY 2016 Plans: Calibration standards which support physical, mechanical and electro-mechanical support equipment will continue to be developed to meet ever changing technology. FY 2017 Plans:		0.426	0.560	0.560

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force		Date: February 2016		
Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>		R-1 Program Element (Number/Name) PE 0702207F / <i>Depot Maintenance (Non-IF)</i>		
C. Accomplishments/Planned Programs (\$ in Millions)		FY 2015	FY 2016	FY 2017
Calibration standards which support physical, mechanical and electro-mechanical support equipment will continue to be developed to meet ever changing technology.				
<p>Title: Analytical Metrology</p> <p>Description: Continue development of standards, models, and procedures to support analytical metrology applications.</p> <p>FY 2015 Accomplishments: Continued development projects to meet changing technology.</p> <p>FY 2016 Plans: Projects will continue in development phase to meet changing technology.</p> <p>FY 2017 Plans: Projects will continue in development phase to meet changing technology.</p>		0.060	0.100	0.100
Accomplishments/Planned Programs Subtotals		1.407	1.525	1.518
D. Other Program Funding Summary (\$ in Millions)				
N/A				
Remarks				
E. Acquisition Strategy				
Primarily accomplished through intergovernmental transfer between the Department of Defense and other Federal Departments.				
F. Performance Metrics				
Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.				

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0702207F / Depot Maintenance (Non-IF)	Project (Number/Name) 673326 / Precision Measurement & Calibration
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
National Institute of Standards & Technology	MIPR	AFMETCAL : Heath, OH	-	0.974	Aug 2015	1.100	Aug 2016	1.118	Aug 2017	0.000		1.118	Continuing	Continuing	-
Department of Defense	MIPR	AFMETCAL : Heath, OH	-	0.260	Aug 2015	0.200	Aug 2016	0.200	Aug 2017	0.000		0.200	Continuing	Continuing	-
Industry	SS/T&M	AFMETCAL : Heath, OH	-	0.173	Aug 2015	0.225	Aug 2016	0.200	Aug 2017	0.000		0.200	Continuing	Continuing	-
Subtotal			-	1.407		1.525		1.518		0.000		1.518	-	-	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

			Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	1.407	1.525	1.518	0.000	1.518	-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force							Date: February 2016			
Appropriation/Budget Activity 3600 / 7			R-1 Program Element (Number/Name) PE 0702207F / <i>Depot Maintenance (Non-IF)</i>			Project (Number/Name) 673326 / <i>Precision Measurement & Calibration</i>				
	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract	

Remarks									

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0702207F / <i>Depot Maintenance (Non-IF)</i>	Project (Number/Name) 673326 / <i>Precision Measurement & Calibration</i>
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FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

Standards Development	
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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0702207F / <i>Depot Maintenance (Non-IF)</i>	Project (Number/Name) 673326 / <i>Precision Measurement & Calibration</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Standards Development	1	2015	4	2018

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0708610F / <i>Logistics Information Technology (LOGIT)</i>
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COST (\$ in Millions)	Prior Years ⁽⁺⁾	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	-	56.325	67.915	61.676	0.000	61.676	56.533	43.068	33.411	15.810	Continuing	Continuing
675207: <i>Logistics IT System Modernization</i>	-	56.325	67.915	61.676	0.000	61.676	56.533	43.068	33.411	15.810	Continuing	Continuing

⁽⁺⁾ The sum of all Prior Years is \$655.115 million less than the represented total due to several projects ending

A. Mission Description and Budget Item Justification

The Air Force (AF) requires an integrated logistics capability that provides timely, accurate and reliable information to decision makers at all levels of command and across the full range of military operations.

Financial Improvement Audit Readiness (FIAR) and Software Upgrades:

The remediation and modification of core logistics systems is necessary for the AF to meet statutory FIAR and align with the Joint Chiefs of Staff J-4 Concept for Logistics and the AF Logistics Board's approved Enterprise Logistics Strategy (ELS). The AF must sustain and modernize these systems through both FIAR Remediation, to address the most immediate gaps in meeting FIAR by the statutory deadline, and Software Upgrades, to reduce high operating costs, implement statutory compliance requirements and improve near term system performance.

Systems contained in these business areas include, but are not limited to, the Combat Ammunitions System (CAS), Integrated Logistics System-Supply (ILS-S), Purchase Request Process System (PRPS), AF Equipment Management System (AFEMS), Enhanced Technical Information Management System (ETIMS), Enhanced Maintenance Operations Center (EMOC), Integrated Maintenance Data System (IMDS), Reliability and Maintainability Information System (REMIS), Stock Control System (SCS), Aircraft Structural Integrity Management Information System (ASIMIS), and Weapon System Management Information System (WSMIS).

Transformation:

The AF must transform its logistics business processes and transition away from using numerous stovepipe systems and process flows that execute the same tasks. Eliminating process redundancies across the logistics enterprise will enable the AF to execute more efficient, cost-effective and integrated logistics in the long term. The objective of transformation is to conduct Business Process Re-engineering (BPR) to identify and eliminate overlaps in our current processes and where appropriate, implement the use of new IT systems.

The AF Service Development and Delivery Process (SDDP) is being applied as part of this BPR effort to apply discipline and focus to the task of process reengineering and requirements development in order to reduce risk and successfully transform logistics IT systems. In the SDDP, the requirements definition, architecture and design for an IT capability is a government-owned process. The SDDP ensures the AF end user and Sponsor consider all possible doctrine, organization, training, material, leadership, personnel and facility solutions to the end user's need/problem before a materiel solution is sought. The SDDP is a six-step process, each step with its

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0708610F / <i>Logistics Information Technology (LOGIT)</i>	
<p>own specific product outcomes that serve as the basis for downstream activities in the SDDP and facilitating enterprise-level analysis to maximize reuse of existing capabilities. Maximizing reuse will eliminate duplicate implementation actions across the AF and assure individual user problems or needs are not solved at the cost of overall enterprise benefits. The outcome of using the SDDP is a well-described requirement which may include a materiel solution, in which case the SDDP details the acquisition and implementation activities to support delivery of the capability. Alternatively, success may be demonstrated by the resolution of the user's problem without a materiel solution.</p> <p>The AF logistics enterprise is comprised of multiple overarching functional areas, to include maintenance, repair and overhaul, end-to-end supply chain support, base supply inventories, and predictive analysis and forecasting. The AF will standardize its business processes within each major logistics functional area through Transformation Capability Initiatives (CI). Transformation CIs include, but are not limited to: Maintenance, Repair and Overhaul Initiatives (MROi), Supply Chain Management (SCM), and Product Lifecycle Management (PLM).</p> <p>-MROi will create an integrated capability that plans, schedules, and executes organic depot maintenance support functions critical to agile planning, optimized workload assignment, resource allocation and throughput, thereby increasing depot maintenance support to the warfighter.</p> <p>-SCM includes Supply, Item Master, and Government Furnished Materiel (GFM) initiatives.</p> <p>--SCM Supply encompasses centralized planning and management of items and equipment such as: repairable, consumables, Nuclear Weapons-Related Materiel (NWRM) and cryptographic items and comprises business operations and inventory for the AF Base Supply community.</p> <p>--SCM Item Master provides the capability to manage comprehensive, accurate, reliable item master data (e.g., accurate identification and authorization of owners and users of items).</p> <p>--SCM GFM Accountability will provide AF accountability for contractor managed government material and reporting of logistics and financial data. AF will be able to track end-to-end logistics and financial transactions, provide Total Asset Visibility (TAV) and report equipment and material inventory values.</p> <p>-PLM enables AF engineering/logistics communities to define, track, protect and manage product data for AF weapon systems and equipment. The AF requires the ability to control configuration of the product throughout the life of the asset. Standardized configuration control will ensure validity, accuracy, reliability, currency, and security of the product information which will increase weapon system readiness by decreasing costs to manage, protect, store and deliver product information.</p> <p>-BA 7 - This program is in Budget Activity 7, Operational System Development because this budget activity includes developmental efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.</p>		

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0708610F / <i>Logistics Information Technology (LOGIT)</i>
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B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	62.894	112.676	1.430	0.000	1.430
Current President's Budget	56.325	67.915	61.676	0.000	61.676
Total Adjustments	-6.569	-44.761	60.246	0.000	60.246
• Congressional General Reductions	0.000	-0.485			
• Congressional Directed Reductions	0.000	-44.276			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	-4.800	0.000			
• SBIR/STTR Transfer	-1.769	0.000			
• Other Adjustments	0.000	0.000	60.246	0.000	60.246

Change Summary Explanation

FY15: Reprogrammed for higher AF priorities and SBIR adjustment.

FY16: Congressional reduction for forward funding; prioritize FIAR.

FY17: Increase support requirements related to remaining audit readiness needs, development of Maintenance, Repair and Overhaul Initiative (MROi) and effective legacy software upgrades.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force										Date: February 2016		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0708610F / <i>Logistics Information Technology (LOGIT)</i>				Project (Number/Name) 675207 / <i>Logistics IT System Modernization</i>			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
675207: <i>Logistics IT System Modernization</i>	-	56.325	67.915	61.676	0.000	61.676	56.533	43.068	33.411	15.810	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The AF requires an integrated logistics capability that provides timely, accurate and reliable information to decision makers at all levels of command and across the full range of military operations.

FIAR and Software Upgrades:

The remediation and modification of core logistics systems is necessary for the AF to meet statutory FIAR and align with the Joint Chiefs of Staff J-4 Concept for Logistics and the AF Logistics Board's approved ELS. The AF must sustain and modernize these systems through both FIAR Remediation, to address the most immediate gaps in meeting FIAR by the statutory deadline, and Software Upgrades, to reduce high operating costs, implement statutory compliance requirements and improve near term system performance.

Systems contained in these business areas include, but are not limited to, the Combat Ammunitions System (CAS), Integrated Logistics System-Supply (ILS-S), Purchase Request Process System (PRPS), AF Equipment Management System (AFEMS), Enhanced Technical Information Management System (ETIMS), Enhanced Maintenance Operations Center (EMOC), Integrated Maintenance Data System (IMDS), Reliability and Maintainability Information System (REMIS), Stock Control System (SCS), Aircraft Structural Integrity Management Information System (ASIMIS), and Weapon System Management Information System (WSMIS).

Transformation:

The AF must transform its logistics business processes and transition away from using numerous stovepipe systems and process flows that execute the same tasks. Eliminating process redundancies across the logistics enterprise will enable the AF to execute more efficient, cost-effective and integrated logistics in the long term. The objective of transformation is to conduct BPR to identify and eliminate overlaps in our current processes and where appropriate, implement the use of new IT systems.

The AF SDDP is being applied as part of this BPR effort to apply discipline and focus to the task of process reengineering and requirements development in order to reduce risk and successfully transform logistics IT systems. In the SDDP, the requirements definition, architecture and design for an IT capability is a government-owned process. The SDDP ensures the AF end user and Sponsor consider all possible doctrine, organization, training, material, leadership, personnel and facility solutions to the end user's need/problem before a materiel solution is sought. The SDDP is a six-step process, each step with its own specific product outcomes that serve as the basis for downstream activities in the SDDP and facilitating enterprise-level analysis to maximize reuse of existing capabilities. Maximizing reuse will eliminate duplicate implementation actions across the AF and assure individual user problems or needs are not solved at the cost of overall enterprise benefits. The

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0708610F / <i>Logistics Information Technology (LOGIT)</i>	Project (Number/Name) 675207 / <i>Logistics IT System Modernization</i>
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outcome of using the SDDP is a well-described requirement which may include a materiel solution, in which case the SDDP details the acquisition and implementation activities to support delivery of the capability. Alternatively, success may be demonstrated by the resolution of the user's problem without a materiel solution.

The AF logistics enterprise is comprised of multiple overarching functional areas, to include maintenance, repair and overhaul, end-to-end supply chain support, base supply inventories, and predictive analysis and forecasting. The AF will standardize its business processes within each major logistics functional area through Transformation CI. Transformation CIs include, but are not limited to: MROi, SCM, and PLM.

-MROi will create an integrated capability that plans, schedules, and executes organic depot maintenance support functions critical to agile planning, optimized workload assignment, resource allocation and throughput, thereby increasing depot maintenance support to the warfighter.

-SCM includes Supply, Item Master, and GFM initiatives.

--SCM Supply encompasses centralized planning and management of items and equipment such as: repairable, consumables, Nuclear Weapons-Related Materiel (NWRM) and cryptographic items and comprises business operations and inventory for the AF Base Supply community.

--SCM Item Master provides the capability to manage comprehensive, accurate, reliable item master data (e.g., accurate identification and authorization of owners and users of items).

--SCM GFM Accountability will provide AF accountability for contractor managed government material and reporting of logistics and financial data. AF will be able to track end-to-end logistics and financial transactions, provide TAV and report equipment and material inventory values.

-PLM enables AF engineering/logistics communities to define, track, protect and manage product data for AF weapon systems and equipment. The AF requires the ability to control configuration of the product throughout the life of the asset. Standardized configuration control will ensure validity, accuracy, reliability, currency, and security of the product information which will increase weapon system readiness by decreasing costs to manage, protect, store and deliver product information.

-BA 7 - This program is in Budget Activity 7, Operational System Development because this budget activity includes developmental efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
<p>Title: Combat Ammunition System (CAS) Software Upgrade</p> <p>Description: Modify CAS software to an object oriented/modular design, provide a more sustainable and scalable baseline, and improve operational performance. Modify CAS software to support FIAR.</p> <p>FY 2015 Accomplishments:</p> <p>- Continued to modify the CAS software to an object oriented/modular design.</p>	6.798	8.442	3.212

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016		
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0708610F / <i>Logistics Information Technology (LOGIT)</i>	Project (Number/Name) 675207 / <i>Logistics IT System Modernization</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2015	FY 2016	FY 2017
<ul style="list-style-type: none"> - Continued to modify CAS to provide an enhanced sustainable and scalable baseline and improve operational performance. - Continued to modify CAS software to support FIAR requirements. <p>FY 2016 Plans:</p> <ul style="list-style-type: none"> - Continuing work to modify CAS software to an object oriented/modular design. - Continuing to modify CAS to provide an enhanced sustainable and scalable baseline and improve operational performance. - Modifying CAS software to support FIAR. <p>FY 2017 Plans:</p> <ul style="list-style-type: none"> - Continue work to modify CAS software to an object oriented/modular design. - Continue to modify CAS to provide an enhanced sustainable and scalable baseline and improve operational performance. - Continue to modify CAS software to support FIAR. 				
<p>Title: Integrated Logistics Systems-Supply (ILS-S) FIAR</p> <p>Description: ILS-S Program Management Office (PMO) to perform multiple FIAR Congressional requirements activities to establish, document and test/assess system audit readiness. Continue and sustain all audit readiness activities to support future FIAR (FISCAM/Blue Book) requirements. These requirements must be accomplished and fully executed to not only ensure program success, but also mandated FIAR compliance.</p> <p>FY 2015 Accomplishments:</p> <ul style="list-style-type: none"> - Continued modification of software to support FIAR Increment II. - Completed the first FIAR release end of FY15. - Began work on second FIAR release. <p>FY 2016 Plans:</p> <ul style="list-style-type: none"> - Continuing to work on second release and and began working on third FIAR release. - Estimate completion of current FIAR requirements by end of FY16. <p>FY 2017 Plans: N/A</p>		5.471	1.653	0.000
<p>Title: Integrated Logistics Systems-Supply (ILS-S) Software Modification - Re-Platform</p> <p>Description: SW Modification Development: The ILS-S Software Modification - Re-Platform effort is to migrate the Standard Base Supply System (SBSS) source code and data from the current UNISYS mainframe Common Business-Oriented Language (COBOL) based SBSS environment to a mid-tier Java environment. This SW development effort also has a second component to it that is critical and essential to the full capability of Re-Platform. The Legacy Adapter portion of the Enterprise Solution Supply</p>		10.232	8.606	8.810

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0708610F / <i>Logistics Information Technology (LOGIT)</i>	Project (Number/Name) 675207 / <i>Logistics IT System Modernization</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
(ES-S) front end requires modification to communicate with the newly modified SBSS system. These modifications are integral for the Re-Platform effort to be successful. FY 2015 Accomplishments: - Began to migrate the SBSS source code and data from the current UNISYS mainframe COBOL based SBSS environment to a mid-tier Java environment. - Began functional requirements analysis and testing of the entire ILS-S application (1.3 million lines of code), which required additional Subject Matter Experts, software developers, software tools, and hardware/licenses to test the environments. - Acquired certification and accreditation support as well as hardware/software maintenance support. FY 2016 Plans: - Continuing software upgrade modification and related efforts. FY 2017 Plans: - Continue Software Upgrade Modification and Development efforts to FOC - Feb 2018.			
Title: Purchase Request Process System (PRPS) FIAR Description: PRPS PMO to perform multiple FIAR Congressional requirements activities to establish, document and test/ assess system audit readiness. Continue and sustain all audit readiness activities to support future FIAR (FISCAM/Blue Book) requirements. These requirements must be accomplished and fully executed to not only ensure program success, but also mandated FIAR compliance. FY 2017 Plans: - Initiate modification of PRPS software to support FIAR requirements.	-	-	0.300
Title: Air Force Equipment Management System (AFEMS) FIAR Description: AFEMS PMO to perform multiple FIAR Congressional requirements activities to establish, document and test/ assess system audit readiness. Continue and sustain all audit readiness activities to support future FIAR (FISCAM/Blue Book) requirements. These requirements must be accomplished and fully executed to not only ensure program success, but also mandated FIAR compliance. FY 2015 Accomplishments: - Continued modification of Transaction Testing, Government Furnished Equipment (GFE), and Serialized Assets FIAR requirements. FY 2016 Plans:	3.781	1.621	3.950

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B. Accomplishments/Planned Programs (\$ in Millions)		FY 2015	FY 2016	FY 2017
- Continuing modification of AFEMS software to support additional FIAR requirements.				
FY 2017 Plans: - Continue modification of AFEMS software to support additional FIAR requirements.				
Title: Air Force Equipment Management System (AFEMS) Software Upgrade		0.000	0.000	1.000
Description: Modify AFEMS (large system with many touchpoints / interfaces with other legacy systems)to convert architecture and software code into a baseline which will allow it to transition into a Defense Common Computing Environment (DCCE).				
FY 2015 Accomplishments: NA				
FY 2016 Plans: N/A				
FY 2017 Plans: - Modify AFEMS (large system with many touchpoints / interfaces with other legacy systems) to convert architecture and software code into a baseline which will allow it to transition into a Defense Common Computing Environment (DCCE).				
Title: Enhanced Technical Information Management System (ETIMS) Software Upgrade		0.000	5.488	5.354
Description: Modify ETIMS software to integrate additional ETIMS enhancements satisfying requirements contained in the Functional Requirements Document. ETIMS requires modernization to incorporate into the AF Enterprise Technical Order (TO) Management System.				
FY 2015 Accomplishments: N/A				
FY 2016 Plans: - Initiating enhancement activities for the ETIMS SUP. - Modifying software to implement functional requirements and principle objectives that are documented in the TO Management Functional Requirements Document (FRD), which aligns with the TO Management Capability Development Document (CDD) authorizing the acquisition of the ETIMS for providing the TO Management System capability.				
FY 2017 Plans: - Continue enhancement activities for the ETIMS SUP.				

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016		
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0708610F / <i>Logistics Information Technology (LOGIT)</i>	Project (Number/Name) 675207 / <i>Logistics IT System Modernization</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2015	FY 2016	FY 2017
<p>- Modify software to implement functional requirements and principle objectives that are documented in the TO Management FRD, which aligns with the TO Management Capability Development Document (CDD) authorizing the acquisition of the ETIMS for providing the TO Management System capability.</p> <p>Title: Enhanced Maintenance Operations Center (EMOC) Software Upgrade</p> <p>Description: Modify EMOC software to support one-way interface from G081, which is an Air Mobility Command maintenance data system designator for the Core Automated Maintenance System for Mobility. This provides the ability to update and view an Expeditionary base's aircraft in one EMOC display comprised of selected aircraft from multiple Integrated Maintenance Data System (IMDS) Enterprise Location Codes.</p> <p>FY 2015 Accomplishments:</p> <ul style="list-style-type: none"> - Continued EMOC software upgrade. - Completed design and began development. <p>FY 2016 Plans:</p> <ul style="list-style-type: none"> - Completing EMOC software upgrade. <p>FY 2017 Plans:</p> <p>N/A</p>		1.568	0.540	0.000
<p>Title: Integrated Maintenance Data System - Central Database (IMDS CDB) Software Upgrade</p> <p>Description: Modify IMDS CDB software to comply with statutory/regulatory technical improvements (Internet Protocol Version 6, Item Unique Identification, etc), and enable an infrastructure migration to significantly reduce annual operating costs of critical maintenance documentation system.</p> <p>FY 2015 Accomplishments:</p> <p>N/A</p> <p>FY 2016 Plans:</p> <p>N/A</p> <p>FY 2017 Plans:</p> <ul style="list-style-type: none"> - Develop Acquisition Documentation, Risk Management Plan and initiate Clinger-Cohen Act certification activities. - Initiate IMDS CDB software upgrade. 		0.000	0.000	2.957
<p>Title: Integrated Maintenance Data System - Central Database (IMDS CDB) Maintenance Scheduling Application Tool (MSAT) Software Upgrade</p>		2.155	2.268	0.400

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
<p>Description: Modify IMDS Central Database (CDB) software to enable the subsumption of the Maintenance Scheduling Application Tool (MSAT) functionality into IMDS CDB, reducing the number of core logistics systems required to document field base level maintenance.</p> <p>FY 2015 Accomplishments:</p> <ul style="list-style-type: none"> - Initiated IMDS CDB MSAT Software Upgrade. - Developed Acquisition Documentation and Risk Management Plan and initiated Clinger-Cohen Act certification activities. <p>FY 2016 Plans:</p> <ul style="list-style-type: none"> - Continuing IMDS CDB MSAT Software Upgrade. - Completing Clinger-Cohen Act certification. - Completing design and beginning development. <p>FY 2017 Plans:</p> <ul style="list-style-type: none"> - Continue IMDS CDB MSAT Software Upgrade. - Establish a mid-tier within the Common Computing Environment to host MSAT functionality within IMDS CDB. 			
<p>Title: Reliability and Maintainability Information System (REMIS) Software Upgrade</p> <p>Description: Modify REMIS software to transition system into a single open architecture baseline which will allow it to transition into a Defense Common Computing Environment (DCCE) and comply with statutory/regulatory requirements. REMIS is the Air Force (AF) Maintenance Enterprise system providing organizational, intermediate and depot level operational authoritative information for all Air Force weapon systems (Aircraft including: Fighter, Bomber, Transport and Helicopter; Remotely Piloted Vehicle (RPV)/Unmanned Aerial Vehicle (UAV); Satellite, Missile; Trainer; Mine-Resistant Ambush Protected (MRAP) Vehicles; Communications-Electronics; Intercontinental Ballistic Missiles (ICBM) and Support Equipment) supporting Air Force World-Wide Operating Bases and Logistic Complexes. REMIS is the Financial System feeder for cost accounting and depreciation of all Air Force weapon systems.</p> <p>FY 2015 Accomplishments:</p> <ul style="list-style-type: none"> - Initiated modifying REMIS system into a single open architecture baseline. <p>FY 2016 Plans:</p> <ul style="list-style-type: none"> - Completing REMIS software upgrade (JAVA EE), begin mandating the IUID efforts, and accomplish any FIAR compliance actions. <p>FY 2017 Plans:</p>	9.867	4.253	3.691

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016		
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0708610F / <i>Logistics Information Technology (LOGIT)</i>	Project (Number/Name) 675207 / <i>Logistics IT System Modernization</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2015	FY 2016	FY 2017
- Migrate REMIS to a DCCE, complete remaining FIAR mandates, and IUID activities.				
<p>Title: Stock Control System (SCS) FIAR</p> <p>Description: SCS PMO to perform multiple Financial Improvement and Audit Readiness (FIAR) Congressional requirements activities to establish, document and test/assess system audit readiness. Continue and sustain all audit readiness activities to support future FIAR (FISCAM/Blue Book) requirements. These requirements must be accomplished and fully executed to not only ensure program success, but also mandated FIAR compliance.</p> <p>FY 2015 Accomplishments:</p> <p>- Modified SCS software to achieve FIAR and CFO Act compliance.</p> <p>FY 2016 Plans:</p> <p>- Continuing to modify SCS software to achieve FIAR and CFO Act compliance.</p> <p>FY 2017 Plans:</p> <p>- Continue modification of SCS software to achieve FIAR and CFO Act compliance.</p>		7.608	2.804	1.207
<p>Title: Stock Control System (SCS) Software Upgrade Program</p> <p>Description: Modernize SCS system software and hardware to meet emerging requirements for increased data rates and accuracy by providing enterprise-wide asset visibility of transactions; integrating screens, processes, and data in a modern web-based presentation; facilitating increased enforcement of business rules; and consolidating application code to enhance support of multiple sites and roles.</p> <p>Note: This is not a new start; all post-ECSS FIAR remediation and modification efforts for AF logistics IT systems were documented in the FY13 and FY14 justification materials for PE 0708610F under the Mission Description and Budget Item justification sections.</p> <p>FY 2017 Plans:</p> <p>- Initiate SCS software upgrade to modernize system software and hardware to meet emerging requirements</p>		-	-	0.218
<p>Title: Transformation Capability Initiative - Supply Chain Management (SCM) Supply</p> <p>Description: SCM Supply encompasses centralized planning and management of items and equipment such as: repairables, consumables, Nuclear Weapons-Related Materiel (NWRM), cryptographic items; and comprises business operations and inventory for the Air Force Base Supply community.</p>		0.000	0.000	0.353

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0708610F / <i>Logistics Information Technology (LOGIT)</i>	Project (Number/Name) 675207 / <i>Logistics IT System Modernization</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
<p>Note: This is not a new start. In the FY15 PB submission, all SCM efforts were under a single initiative, which included SCM Supply, SCM Item Master, and SCM GFM. In the FY16 PB, the AF divided SCM into three sub-initiatives to provide additional visibility into the specific mission process areas.</p> <p>FY 2015 Accomplishments: NA</p> <p>FY 2016 Plans: N/A</p> <p>FY 2017 Plans: - Will stand up program management team - Initiate SCM Supply effort</p>			
<p>Title: Transformation Capability Initiative - Supply Chain Management (SCM) Item Master</p> <p>Description: Provides the capability to manage comprehensive, accurate and reliable item data. SCM will initiate SDDP activities and will focus on preliminary system design to address Item Master Management and Item Support Processes.</p> <p>Note: This is not a new start. In the FY15 PB submission, all SCM efforts were under a single initiative, which included SCM Supply, SCM Item Master, and SCM GFM. In the FY16 PB, the AF divided SCM into three sub-initiatives to provide additional visibility into the specific mission process areas.</p> <p>FY 2015 Accomplishments: NA</p> <p>FY 2016 Plans: - Standing up program management team - Initiating SCM Item Master effort</p> <p>FY 2017 Plans: - Continue to Initiate SCM Item Master effort.</p>	0.000	1.000	0.588
<p>Title: Transformation Capability Initiative - Supply Chain Management (SCM) Government Furnished Materiel (GFM)-Accountability</p> <p>Description: SCM GFM Accountability will provide AF accountability for contractor managed government material and reporting of logistics and financial data. AF will be able to track end-to-end logistics and financial transactions, provide TAV and report equipment and material inventory values.</p>	0.000	0.750	0.267

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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
<p>Note: This is not a new start. In the FY15 PB submission, all SCM efforts were under a single initiative, which included SCM Supply, SCM Item Master, and SCM GFM. In the FY16 PB, the AF divided SCM into three sub-initiatives to provide additional visibility into the specific mission process areas.</p> <p>FY 2015 Accomplishments: N/A</p> <p>FY 2016 Plans:</p> <ul style="list-style-type: none"> - Stand up SCM GFM Accountability program management support team. - Initiate SCM GFM Accountability. <p>FY 2017 Plans:</p> <ul style="list-style-type: none"> - Continue to initiate SCM GFM Accountability effort. 			
<p>Title: Transformation Capability Initiative - Maintenance, Repair and Overhaul (MRO)</p> <p>Description: The MROi transformation effort will create an integrated capability for planning, scheduling, executing organic depot maintenance to support agile planning, optimizing workload assignment and resource allocation.</p> <p>FY 2015 Accomplishments:</p> <ul style="list-style-type: none"> - Supported MROi program office efforts in preparation for Milestone B and System Implementer award to assist the functional customer and program office with configuring the MROi application into AF re-engineered business processes (re-engineered up front to reduce Reports, Interfaces, Conversions and Extensions (RICE)). - Continued Risk Reduction efforts to validate MilCloud+ host environment to include developing processes and procedures to enable successful instantiation of the ORACLE software product. <p>FY 2016 Plans:</p> <ul style="list-style-type: none"> - Supporting formulation, review, approval and execution of acquisition activities targeting a Q3FY16 MS B decision and contract award for SI. - The SI will begin to integrate the Commercial-Off-The-Shelf (COTS)/RICE software onto the hosting infrastructure (currently working on hosting environment plans). <p>FY 2017 Plans:</p> <ul style="list-style-type: none"> - SI will begin to integrate the COTS / RICE software onto the hosting infrastructure (Will continue to work on hosting environment plans). 	7.063	27.054	27.255
<p>Title: Transformation Capability Initiative - Product Lifecycle Management (PLM)</p>	0.000	1.300	0.950

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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
<p>Description: PLM-CI will enable AF engineering/logistics communities to define, track, protect and manage product data for AF weapon systems and equipment. It will also enable collaboration by connecting field users with center engineers, original equipment manufactures with equipment specialists and internal/external stakeholders, and modernize the means used to manage PLM information from cradle to grave.</p> <p>FY 2015 Accomplishments: N/A</p> <p>FY 2016 Plans: - Initiating PLM prototyping "Build Zero" effort, a risk reduction activity to provide an initial AF enterprise PLM solution to sufficiently configure and control Product Lifecycle Information (PLI) that enables depot and field engineering technical assistance request capability. - Performing program planning and definition, while developing the post-Build Zero Acquisition Strategy, Enterprise Infrastructure, Program Charter, Program Schedule, and Program Office Estimate.</p> <p>FY 2017 Plans: - Continue PLM prototyping "Build Zero" efforts. - Continue to perform program planning and definition, while developing the post-build zero Acquisition Strategy, Enterprise Infrastructure, Program Charter, Program Schedule, and Program Office Estimate.</p>			
<p>Title: Aircraft Structural Integrity Management Information System (ASIMIS) Software Upgrade</p> <p>Description: ASIMIS modification to rehost and modernize the system in a web-based format.</p> <p>FY 2015 Accomplishments: - Initiated data migration and data recompilation activities to move data from mainframe to web-based architecture.</p> <p>FY 2016 Plans: - Continuing data migration and data recompilation activities to move data from mainframe to web-based architecture.</p> <p>FY 2017 Plans: - Continue data migration and data recompilation activities to move data from mainframe to web-based architecture.</p>	1.782	2.136	0.864
<p>Title: Weapons System Management Information System (WSMIS) Software Upgrade 2</p> <p>Description: Modify WSMIS (large system with many touch points / interfaces with other legacy systems) to convert architecture and software code to allow transition into a Defense Common Computing Environment (DCCE). Enhance WSMIS to comply with AF Decision and Operational Support standards to assess the logistics health and capabilities of AF weapon systems as needed.</p>	-	-	0.300

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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
FY 2017 Plans: - Initiate modifying WSMIS to convert architecture and software code to allow transition into a DCCE.			
Accomplishments/Planned Programs Subtotals	56.325	67.915	61.676

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• OPAF:BA03:Line Item # 834430: <i>Global Combat Support System-Air Force (GCSS-AF)</i>	2.974	14.219	0.924	0.000	0.924	6.358	6.397	10.461	12.312	Continuing	Continuing

Remarks

D. Acquisition Strategy

Air Force Program Executive Office - Business Enterprise Systems (AFPEO-BES) is evaluating systems under the DoDI 5000.02 to approve milestone decisions for each core logistics system remediation/modification project.

These projects will use Firm Fixed Price contracts to the maximum extent possible as the programs establish new contracts or task orders. To improve the efficiency of the contracting process and reduce contract cycle time, the core logistics system program offices plan to use the existing NETCENTS-2 contract vehicle utilizing Best Value acquisition methodology where possible.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Combat Ammunition System (CAS) Software Upgrade - Developer	C/CPFF	SI Sys Tech : Gunter Annex, AL	-	6.006	May 2015	6.270	Apr 2016	1.752	Dec 2016	0.000		1.752	Continuing	Continuing	-
Integrated Logistics Systems-Supply (ILS-S) FIAR - Developer	C/CPFF	Array : Gunter Annex, AL	-	4.363	May 2015	0.842	Feb 2016	0.000		0.000		0.000	Continuing	Continuing	-
ILS-S Software Modification - Re-Platform - Developer	C/CPFF	Array : Gunter Annex, AL	-	6.716	Apr 2015	1.912	Dec 2015	2.343	Dec 2016	0.000		2.343	Continuing	Continuing	-
ILS-S Software Modification - Re-Platform - Legacy Adapter	C/FFP	Array : Gunter Annex, AL	-	0.595	May 2015	0.793	Dec 2015	0.209	Dec 2016	0.000		0.209	Continuing	Continuing	-
ILS-S Software Modification - Re-Platform - Hardware	C/FFP	DISA : Gunter Annex, AL	-	1.370	May 2015	2.642	Dec 2015	3.130	Dec 2016	0.000		3.130	Continuing	Continuing	-
ILS-S Software Modification - Re-Platform - COTS Software	C/FFP	ORACLE : Gunter Annex, AL	-	0.000		0.209	Apr 2016	1.756	Dec 2016	0.000		1.756	Continuing	Continuing	-
PRPS FIAR - Developer	SS/FFP	NGIT : WPAFB, OH	-	0.000		0.000		0.200	Feb 2017	0.000		0.200	Continuing	Continuing	-
Air Force Equipment Management System (AFEMS) FIAR - Developer	C/FFP	MacAuley Brown : WPAFB, OH	-	3.595	Aug 2015	0.685	Dec 2015	2.894	Dec 2016	0.000		2.894	Continuing	Continuing	-
AFEMS Software Upgrade - Developer	C/Variou	NETCENTS-2 : WPAFB, OH	-	0.000		0.000		1.000	Apr 2017	0.000		1.000	Continuing	Continuing	-
Enhanced Technical Information Management System (ETIMS) Software Upgrade-Developer	C/CPFF	DMI/NETCENTS-2 : WPAFB, OH	-	0.000		5.488	Jul 2016	5.354	Sep 2017	0.000		5.354	Continuing	Continuing	-
Enhanced Maintenance Operations Center (EMOC) Software Upgrade - Developer	C/CPFF	Indrasoft : Gunter AFB, AL	-	1.373	Oct 2015	0.423	Oct 2015	0.000		0.000		0.000	Continuing	Continuing	-

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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Integrated Maintenance Data System - Central Database (IMDS CDB) Software Upgrade - Developer	C/CPFF	NETCENTS-2 : Gunter Annex, AL	-	0.000		0.000		2.513	Jun 2017	0.000		2.513	Continuing	Continuing	-
IMDS CDB Maintenance Scheduling Application Tool (MSAT) Software Upgrade - Developer	C/FFP	NETCENTS-2 : Gunter Annex, AL	-	0.000		1.549	Jun 2016	0.100	May 2017	0.000		0.100	Continuing	Continuing	-
Reliability and Maintainability Information System (REMIS) Software Upgrade - Developer	SS/FFP	NGIT : WPAFB, OH	-	9.567	Nov 2014	3.333	Jan 2016	3.096	Oct 2016	0.000		3.096	Continuing	Continuing	-
Stock Control System (SCS) FIAR - Developer	C/Variou	NETCENTS-2 : WPAFB, OH	-	7.020	Feb 2015	1.320	Feb 2016	0.640	Dec 2016	0.000		0.640	Continuing	Continuing	-
Stock Control System (SCS) Software Upgrade - Developer	C/TBD	NETCENTS-2 : WPAFB, OH	-	0.000		0.000		0.100	Aug 2017	0.000		0.100	Continuing	Continuing	-
Transformation Capability Initiative - Maintenance, Repair and Overhaul (MRO) Design/ Development	C/Variou	NETCENTS-2 : WPAFB, OH	-	0.000		13.248	Jun 2016	7.442	Dec 2016	0.000		7.442	Continuing	Continuing	-
Transformation capability Initiative - Product Lifecycle Management (PLM) Software Developer	SS/ Variou	Various : Warner Robins, GA	-	0.000		0.670	Jan 2016	0.430	Jan 2017	0.000		0.430	Continuing	Continuing	-
Aircraft Structural Integrity Management Information System (ASIMIS) Software Upgrade - Developer	SS/CPFF	GCSS-AF : Tinker AFB, OK	-	1.704	Jul 2015	1.922	Aug 2016	0.778	Aug 2017	0.000		0.778	Continuing	Continuing	-
Subtotal			-	42.309		41.306		33.737		0.000		33.737	-	-	-

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Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
CAS Software Upgrade Support	C/FFP	NETCENTS-2 : Gunter Annex, AL	-	0.598	Feb 2015	1.639	Jan 2016	1.100	Dec 2016	0.000		1.100	Continuing	Continuing	-
ILS-S FIAR - SME Support	C/FFP	CENTECH : Gunter Annex, AL	-	0.991	Apr 2015	0.703	Feb 2016	0.000		0.000		0.000	Continuing	Continuing	-
ILS-S Software Modification - Re-Platform - SME Support	C/FFP	NETCENTS -2 : Gunter Annex, AL	-	1.396	Jun 2015	2.769	Dec 2015	1.228	Dec 2016	0.000		1.228	Continuing	Continuing	-
PRPS FIAR - SME Support	C/FFP	NETCENTS-2 : WPAFB, OH	-	0.000		0.000		0.075	Nov 2016	0.000		0.075	Continuing	Continuing	-
EMOC Software Upgrade - Support	C/Various	Various : Gunter Annex, AL	-	0.022	Sep 2015	0.014	Sep 2016	0.000		0.000		0.000	Continuing	Continuing	-
IMDS CDB Software Upgrade - Architecture Support	C/FFP	Copper River : Gunter Annex, AL	-	0.000		0.000		0.054	Mar 2017	0.000		0.054	Continuing	Continuing	-
IMDS CDB MSAT Software Upgrade - Architecture Support	Various	Various : Gunter Annex, AL	-	2.054	Nov 2014	0.064	Sep 2016	0.170	Nov 2016	0.000		0.170	Continuing	Continuing	-
Air Force Equipment Management System (AFEMS) - ISP Support	C/FFP	Copper River : WPAFB, OH	-	0.014	Nov 2015	0.065	Feb 2016	0.067	Dec 2016	0.000		0.067	Continuing	Continuing	-
Air Force Equipment Management System (AFEMS) FIAR- SME Support	C/FFP	Excellus / CACI : WPAFB, OH	-	0.000		0.638	Apr 2016	0.689	Dec 2016	0.000		0.689	Continuing	Continuing	-
REMIS SUP - SME Support	C/FFP	NETCENTS-2 : WPAFB, OH	-	0.000		0.210	Jan 2016	0.150	Feb 2017	0.000		0.150	Continuing	Continuing	-
REMIS SUP - IA Support	C/CPFF	SNIM : WPAFB, OH	-	0.000		0.100	Jan 2016	0.100	Jan 2017	0.000		0.100	Continuing	Continuing	-
REMIS SUP - ISP Support	C/CPFF	Copper River : Gunter Annex, AL	-	0.300	Aug 2015	0.270	Jun 2016	0.150	Feb 2017	0.000		0.150	Continuing	Continuing	-
SCS FIAR - ISP Support	C/FFP	Copper River : WPAFB, OH	-	0.081	Mar 2015	0.086	Feb 2016	0.000		0.000		0.000	Continuing	Continuing	-
SCS FIAR - SME Support	C/FFP	NETCENTS-2 : WPAFB, OH	-	0.328	Mar 2015	0.696	Apr 2016	0.325	Apr 2017	0.000		0.325	Continuing	Continuing	-

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Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
SCS FIAR - Datacom Support	C/CPAF	NETCENTS 2 : WPAFB, OH	-	0.000		0.056	Mar 2016	0.020	Mar 2017	0.000		0.020	Continuing	Continuing	-
SCS FIAR - CFO SME Support	C/CPAF	WMP, LLC : WPAFB, OH	-	0.000		0.350	Sep 2016	0.100	Sep 2017	0.000		0.100	Continuing	Continuing	-
MRO Initiative - ISP Support	C/CPFF	Copper River : Gunter Annex, AL	-	0.140	Sep 2015	0.400	Sep 2016	0.455	Sep 2017	0.000		0.455	Continuing	Continuing	-
MRO Initiative -Legacy System Software	C/CPFF	Various : WPAFB, OH	-	0.100	Dec 2015	0.014	Feb 2016	10.261	Feb 2017	0.000		10.261	Continuing	Continuing	-
MRO Initiative - Hosting Environment Support	MIPR	DISA : Gunter Annex, AL	-	3.881	Jan 2015	8.588	Apr 2016	2.660	Dec 2016	0.000		2.660	Continuing	Continuing	-
MRO Initiative - Mitre	SS/FFP	Mitre : WPAFB, OH	-	0.453	Oct 2014	0.658	Oct 2015	1.288	Oct 2016	0.000		1.288	Continuing	Continuing	-
MRO Initiative - Oracle	C/FFP	Oracle : WPAFB, OH	-	0.000		1.200	Jan 2016	1.565	Jan 2016	0.000		1.565	Continuing	Continuing	-
Subtotal			-	10.358		18.520		20.457		0.000		20.457	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
CAS Software Upgrade CIE	MIPR	GSA : Gunter Annex, AL	-	0.007	Aug 2015	0.120	Dec 2015	0.100	Dec 2016	0.000		0.100	Continuing	Continuing	-
EMOC Software Upgrade - Test Support	MIPR	GSA : Gunter Annex, AL	-	0.066	Jun 2015	0.054	Jun 2016	0.000		0.000		0.000	Continuing	Continuing	-
IMDS CDB MSAT Software Upgrade - Test Support	MIPR	GSA : Gunter Annex, AL	-	0.000		0.200	Jun 2016	0.117	Jun 2017	0.000		0.117	Continuing	Continuing	-
Air Force Equipment Management System (AFEMS) FIAR - Test Support	MIPR	GSA : WPAFB, OH	-	0.003	Sep 2015	0.034	Apr 2016	0.080	Dec 2016	0.000		0.080	Continuing	Continuing	-
REMIS SUP - Test Support	C/Various	Various : WPAFB, OH	-	0.000		0.295	Mar 2016	0.150	Jan 2017	0.000		0.150	Continuing	Continuing	-
SCS FIAR - Test Support	MIPR	GSA : WPAFB, OH	-	0.046	Mar 2015	0.048	Apr 2016	0.031	Apr 2017	0.000		0.031	Continuing	Continuing	-

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Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
MRO Initiative - Test Support	MIPR	GSA : WPAFB, OH	-	0.307	May 2015	0.371	Feb 2016	0.378	Feb 2017	0.000		0.378	Continuing	Continuing	-
Subtotal			-	0.429		1.122		0.856		0.000		0.856	-	-	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
CAS Software Upgrade PMA	C/Variou	BTAS/Jacobs : Gunter Annex, AL	-	0.187	Feb 2015	0.413	Nov 2015	0.260	Dec 2016	0.000		0.260	Continuing	Continuing	-
ILS-S FIAR - Cost Support	C/CPFF	Tecolote : Gunter Annex, AL	-	0.052	Oct 2014	0.011	Oct 2015	0.000		0.000		0.000	Continuing	Continuing	-
ILS-S FIAR - Advisory and Assistance Services	C/Variou	Oasis/BTAS : Gunter Annex, AL	-	0.041	Jan 2015	0.074	Feb 2016	0.000		0.000		0.000	Continuing	Continuing	-
ILS-S FIAR - Travel	Various	DTS : Gunter AFB, AL	-	0.001	Apr 2015	0.000		0.000		0.000		0.000	Continuing	Continuing	-
ILS-S FIAR - ETASS	C/CPFF	Jacobs Tech : Gunter AFB, AL	-	0.023	Apr 2015	0.023	Jan 2016	0.000		0.000		0.000	Continuing	Continuing	-
ILS-S Software Modification - Re-Platform - Cost Support	C/CPFF	Tecolote : Gunter Annex, AL	-	0.051	Oct 2014	0.057	Dec 2015	0.000		0.000		0.000	Continuing	Continuing	-
ILS-S Software Modification - Re-Platform - Advisory and Assistance Services	C/Variou	BTAS : Gunter Annex, AL	-	0.094	Jan 2015	0.093	Dec 2015	0.031	Dec 2016	0.000		0.031	Continuing	Continuing	-
ILS-S Software Modification - Re-Platform - ETASS	C/CPFF	Jacobs Tech : Gunter Annex, AL	-	0.010	Aug 2015	0.041	Dec 2015	0.013	Dec 2016	0.000		0.013	Continuing	Continuing	-
ILS-S Software Modification Re-Platform- JITC	C/FFP	MIPR : Gunter Annex, AL	-	0.000		0.090	Jun 2016	0.100	Dec 2016	0.000		0.100	Continuing	Continuing	-

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Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
PRPS FIAR - Advisory and Assistance Support	C/Variou	BTAS/Jacobs : WPAFB, OH	-	0.000		0.000		0.025	Nov 2016	0.000		0.025	Continuing	Continuing	-
EMOC Software Upgrade - PMA	C/CPFF	Jacobs Tech : Gunter Annex, AL	-	0.076	Apr 2015	0.028	Mar 2016	0.000		0.000		0.000	Continuing	Continuing	-
EMOC Software Upgrade - Cost Support	C/CPFF	Tecolote : Gunter Annex, AL	-	0.031	Oct 2014	0.021	Oct 2016	0.000		0.000		0.000	Continuing	Continuing	-
IMDS CDB Software Upgrade - PMA	C/FFP	BTAS : Gunter Annex, AL	-	0.000		0.000		0.350	May 2017	0.000		0.350	Continuing	Continuing	-
IMDS CDB Software Upgrade - Cost Support	C/CPFF	Tecolote : Gunter Annex, AL	-	0.000		0.000		0.040	Oct 2017	0.000		0.040	Continuing	Continuing	-
IMDS CDB MSAT - PMA	C/CPFF	Jacobs Tech : Gunter Annex, AL	-	0.101	Apr 2015	0.455	Dec 2015	0.013	May 2017	0.000		0.013	Continuing	Continuing	-
Air Force Equipment Management (AFEMS) FIAR - PMA	C/Variou	Various : WPAFB, OH	-	0.169	Apr 2015	0.199	Nov 2015	0.220	Dec 2016	0.000		0.220	Continuing	Continuing	-
REMIS Software Upgrade - Advisory and Assistance Services	C/Variou	BTAS : WPAFB, OH	-	0.000		0.045	Jan 2016	0.045	Jan 2017	0.000		0.045	Continuing	Continuing	-
SCS FIAR - Advisory and Assistance Services	C/Variou	BTAS/Jacobs : WPAFB, OH	-	0.133	May 2015	0.248	Aug 2016	0.091	Aug 2017	0.000		0.091	Continuing	Continuing	-
SCS SUP - Advisory and Assistance Services	C/Variou	ETASS : WPAFB, OH	-	0.000		0.000		0.050	Jul 2017	0.000		0.050	Continuing	Continuing	-
SCS SUP Advisory and Assistance Services	C/Variou	BTAS /Jacobs : WPAFB, OH	-	0.000		0.000		0.068	Jul 2017	0.000		0.068	Continuing	Continuing	-
MRO Initiative - ETASS Support	C/CPFF	Jacobs : WPAFB, OH	-	0.715	Apr 2015	1.055	Jan 2016	1.539	Jan 2017	0.000		1.539	Continuing	Continuing	-
MRO Initiative - PASS Support	C/Variou	Oasis/BTAS : WPAFB, OH	-	0.699	Feb 2015	0.859	Jan 2016	0.846	Jan 2017	0.000		0.846	Continuing	Continuing	-
MRO Initiative - Cost Analyst Support	C/CPFF	Tecolote : WPAFB, OH	-	0.509	Oct 2014	0.522	Oct 2015	0.514	Oct 2016	0.000		0.514	Continuing	Continuing	-
MRO Initiative - PMA	C/Variou	Various : WPAFB, OH	-	0.259	Nov 2014	0.139	Nov 2015	0.307	Nov 2016	0.000		0.307	Continuing	Continuing	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0708610F / <i>Logistics Information Technology (LOGIT)</i>	Project (Number/Name) 675207 / <i>Logistics IT System Modernization</i>
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Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Transformation Capability Initiative - Product Lifecycle Management (PLM) PMA Support	C/Variou	Various : WPAFB, OH	-	0.000		0.630	Feb 2016	0.520	Jan 2017	0.000		0.520	Continuing	Continuing	-
Transformation Capability Initiative - SCM GFM Accountability PMA	C/Variou	Various : WPAFB, OH	-	0.000		0.750	Jan 2016	0.267	Jan 2017	0.000		0.267	Continuing	Continuing	-
Transformation Capability Initiative - Supply Chain Management (SCM) - Item Master - PMO Support	C/Variou	Various : WPAFB, OH	-	0.000		1.000	Feb 2016	0.588	Jan 2017	0.000		0.588	Continuing	Continuing	-
Transformation Capability Initiative - SCM Supply PMA	C/Variou	Various : WPAFB, OH	-	0.000		0.000		0.353	Mar 2017	0.000		0.353	Continuing	Continuing	-
ASIMIS Software Upgrade - PMO Support	C/Variou	Various : Tinker AFB, OK	-	0.078	Jul 2015	0.214	Aug 2016	0.086	Aug 2017	0.000		0.086	Continuing	Continuing	-
Weapons System Management Information System (WSMIS) Software Upgrade 2 - PMA	C/Variou	Various : WPAFB, OH	-	0.000		0.000		0.300	May 2017	0.000		0.300	Continuing	Continuing	-
Subtotal			-	3.229		6.967		6.626		0.000		6.626	-	-	-

	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	56.325	67.915	61.676	0.000	61.676	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0708610F / <i>Logistics Information Technology (LOGIT)</i>	Project (Number/Name) 675207 / <i>Logistics IT System Modernization</i>

	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
CAS Software Upgrade Development and Deployment	█																											
CAS Software Upgrade IOC/LDD (Jun 2017)											█																	
CAS Software Upgrade LDD #2 (Dec 2018)															█													
CAS Software Upgrade FDD/FD (Dec 2020)																												
ILS-S FIAR R3 Development and Deployment	█																											
ILS-S FIAR R3 LDD/IOC (Oct 2016)							█																					
ILS-S FIAR R4 Development and Deployment																												
ILS-S FIAR R4 LDD (Jun 2016)																												
ILS-S FIAR Milestone B (Aug 2015)																												
ILS-S FIAR R5 Development and Deployment																												
ILS-S FIAR R5 FDD/FD (Aug 2016)																												
ILS-S Software Modification - Re-Platform MS B (Feb 2015)																												
ILS-S Software Modification - Re-Platform Award (Apr 2015)																												
ILS-S Software Modification - Re-Platform Development and Deployment																												
ILS-S Software Modification - Re-Platform LDD/IOC (May 2017)																												
ILS-S Software Modification - Re-Platform FDD/FD (Feb 2018)																												
PRPS FIAR MDD (Sep 2016)																												
PRPS Risk Reduction																												
PRPS FIAR MS B (Jan 2017)																												
PRPS FIAR Contract Award (Feb 2017)																												

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0708610F / <i>Logistics Information Technology (LOGIT)</i>	Project (Number/Name) 675207 / <i>Logistics IT System Modernization</i>
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	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
PRPS FIAR Development and Deployment																												
PRPS FIAR LDD/IOC (Mar 2018)																												
PRPS FIAR FDD/FD (Jun 2018)																												
AFEMS FIAR (1) Development and Deployment																												
AFEMS FIAR(1) LDD/IOC (Jul 2015)																												
AFEMS FIAR (2) Development and Deployment																												
AFEMS FIAR (2) LDD (Feb 2016)																												
AFEMS FIAR (3) Development and Deployment																												
AFEMS FIAR (3) LDD (Jun 2016)																												
AFEMS FIAR Inc2 MS B (Jan 2016)																												
AFEMS FIAR Inc2 Contract Award (Jun 2016)																												
AFEMS FIAR Inc2 (1) Development and Deployment																												
AFEMS FIAR Inc2 (1) LDD (Jun 2017)																												
AFEMS FIAR Inc2 (2) Development and Deployment																												
AFEMS FIAR Inc2 (2) LDD (Sep 2017)																												
AFEMS FIAR Inc2 (3) Development and Deployment																												
AFEMS FIAR Inc2 (3) FDD/FD (May 2018)																												
AFEMS SUP MDD (Feb 2017)																												
AFEMS SUP Risk Reduction																												
AFEMS SUP MS B (Mar 2017)																												
AFEMS SUP Contract Award (Apr 2017)																												

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force																Date: February 2016												
Appropriation/Budget Activity 3600 / 7											R-1 Program Element (Number/Name) PE 0708610F / Logistics Information Technology (LOGIT)					Project (Number/Name) 675207 / Logistics IT System Modernization												
	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
AFEMS SUP Development and Deployment																												
AFEMS SUP LDD/IOC (Jul 2018)																												
AFEMS SUP FDD/FD (Aug 2018)																												
ETIMS Software Upgrade Enhancements MDD (Feb 2016)																												
ETIMS Software Upgrade Enhancements Risk Reduction Phase																												
ETIMS Software Upgrade Enhancements Phase I MS B (May 2016)																												
ETIMS Software Upgrade Enhancements Phase I Contract Award (Jul 2016)																												
ETIMS Software Upgrade Enhancements Development and Deployment																												
ETIMS Software Upgrade Enhancements FDD/ FD (Jul 2018)																												
EMOC Software Upgrade Development and Deployment																												
EMOC Software Upgrade FDD (Sep 2016)																												
EMOC Software Upgrade FD (Sep 2016)																												
IMDS CDB Software Upgrade MDD (Mar 2017)																												
IMDS CDB Software Upgrade Risk Reduction																												
IMDS CDB Software Upgrade MS B (Jul 2017)																												
IMDS CDB Software Upgrade Contract Award (Sep 2017)																												
IMDS CDB Software Upgrade Development and Deployment																												
IMDS CDB Software Upgrade LDD/IOC (Sep 2018)																												

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0708610F / <i>Logistics Information Technology (LOGIT)</i>	Project (Number/Name) 675207 / <i>Logistics IT System Modernization</i>
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	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
IMDS CDB Software Upgrade (1) Contract Award (Jul 2018)																												
IMDS CDB Software Upgrade (1) Development and Deployment																												
IMDS CDB Software Upgrade (1) FDD (Aug 2019)																												
IMDS CDB Software Upgrade (1) FD (Sep 2019)																												
IMDS CDB MSAT Software Upgrade MDD (Oct 2014)																												
IMDS CDB MSAT Software Upgrade Risk Reduction																												
IMDS CDB MSAT Software Upgrade MS B (Apr 2016)																												
IMDS CDB MSAT Software Upgrade Contract Award (Jun 2016)																												
IMDS CDB MSAT Software Upgrade Development and Deployment																												
IMDS CDB MSAT Software Upgrade LDD/IOC (Mar 2018)																												
IMDS CDB MSAT Software Upgrade FDD (Apr 2018)																												
IMDS CDB MSAT Software Upgrade FD (June 2018)																												
REMIS Software Upgrade Contract Award (Nov 2014)																												
REMIS Software Upgrade Development & Deployment																												
REMIS Software Upgrade LDD/IOC (Feb 2017)																												

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0708610F / <i>Logistics Information Technology (LOGIT)</i>	Project (Number/Name) 675207 / <i>Logistics IT System Modernization</i>
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	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
REMIS Software Upgrade FDD/FD (Apr 2017)																												
SCS FIAR CCA/MS B/Award (Nov 2014)	■																											
SCS FIAR (2) Development and Deployment	■	■	■	■																								
SCS FIAR (2) LDD/IOC (Nov 2015)					■	■																						
SCS FIAR (3) Development and Deployment		■	■	■																								
SCS FIAR (3) LDD (Mar 2016)						■	■																					
SCS FIAR (4) Development and Deployment			■	■	■	■																						
SCS FIAR (4) LDD (May 2016)							■	■																				
SCS FIAR (5) Development and Deployment			■	■	■	■																						
SCS FIAR (5) LDD (Jul 2016)								■	■																			
SCS FIAR (6) Development and Deployment			■	■	■	■																						
SCS FIAR (6) LDD (Sep 2016)								■	■																			
SCS FIAR (7) Development and Deployment						■	■	■	■	■	■																	
SCS FIAR (7) FDD/FD (Nov 2017)																■	■											
SCS SUP MDD (Jun 2017)												■	■															
SCS SUP Risk Reduction												■	■															
SCS SUP MS B (Aug 2017)													■	■														
SCS SUP Contract Award (Sept 2017)														■	■													
SCS SUP Development and Deployment																■	■	■	■	■	■	■	■	■	■	■	■	■
SCS SUP LDD/IOC (Dec 2019)																												
SCS SUP FDD/FD (Jun 2020)																												
SCM - Supply MDD (Sep 2017)													■	■														
SCM - Supply Materiel Solutions Analysis						■	■	■	■	■	■																	
SCM - Supply Risk Reduction																■	■	■	■	■	■	■	■	■	■	■	■	■
SCM - Supply MS B (Sep 2019)																												

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0708610F / <i>Logistics Information Technology (LOGIT)</i>	Project (Number/Name) 675207 / <i>Logistics IT System Modernization</i>
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	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
SCM - Supply Development and Deployment																												
SCM- Supply IOC (Apr 2020)																												
SCM- Item Master MDD (Sep 2016)																												
SCM - Item Master Materiel Solutions Analysis																												
SCM - Item Master Risk Reduction																												
SCM- Item Master MS B (May 2018)																												
SCM- Item Master Development and Deployment																												
SCM- Item Master FDD (May 2020)																												
SCM - Item Master FD (Mar 2021)																												
SCM - GFM Accountability MDD (Jan 2016)																												
SCM GFM Accountability Materiel Solutions Analysis																												
SCM - GFM Accountability Development and Deployment																												
SCM - GFM Accountability IOC/FDD (Sep 2016)																												
SCM- GFM Accountability FD (Oct 2017)																												
MRO Risk Reduction																												
MRO MS A/B (May 2016)																												
MRO Contract Award (Jun 2016)																												
MRO R1 Development and Deployment																												
MRO R1 IOC (Mar 2019)																												
MRO R2 Development and Deployment																												
MRO R2 FD (Sep 2019)																												
MRO R3 Development and Deployment																												

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0708610F / <i>Logistics Information Technology (LOGIT)</i>	Project (Number/Name) 675207 / <i>Logistics IT System Modernization</i>
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	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
MRO R3 FD (Aug 2020)																												
MRO R4 Development and Deployment																												
MRO R4 FD (Jan 2021)																												
PLM MDD (Dec 2016)																												
PLM Risk Reduction																												
PLM MS B (Jun 2018)																												
PLM Milestone Contract Award (Aug 2018)																												
PLM Development and Deployment																												
PLM LDD (Jun 2019)																												
PLM FDD (Dec 2020)																												
PLM FD (Mar 2020)																												
ASMIS Material Solution Analysis																												
ASIMIS Risk Reduction																												
ASIMIS MS B (Nov 2017)																												
ASIMIS Contract Award (Feb 2018)																												
ASIMIS Development and Deployment																												
ASIMIS LDD/IOC (Jun 2020)																												
ASIMIS FDD/FD (Nov 2021)																												
WSMIS SUP (2) MDD (Apr 2017)																												
WSMIS SUP (2) Risk Reduction																												
WSMIS SUP (2) MS B (Aug 2017)																												
WSMIS SUP (2) Award (Nov 2017)																												
WSMIS SUP (2) Development and Deployment																												
WSMIS SUP (2) IOC/FDD/FD (Sep 2018)																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0708610F / <i>Logistics Information Technology (LOGIT)</i>	Project (Number/Name) 675207 / <i>Logistics IT System Modernization</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
CAS Software Upgrade Development and Deployment	1	2015	1	2020
CAS Software Upgrade IOC/LDD (Jun 2017)	3	2017	3	2017
CAS Software Upgrade LDD #2 (Dec 2018)	1	2018	1	2018
CAS Software Upgrade FDD/FD (Dec 2020)	1	2020	1	2020
ILS-S FIAR R3 Development and Deployment	1	2015	4	2015
ILS-S FIAR R3 LDD/IOC (Oct 2016)	1	2016	1	2016
ILS-S FIAR R4 Development and Deployment	3	2015	3	2016
ILS-S FIAR R4 LDD (Jun 2016)	3	2016	3	2016
ILS-S FIAR Milestone B (Aug 2015)	4	2015	4	2015
ILS-S FIAR R5 Development and Deployment	1	2016	4	2016
ILS-S FIAR R5 FDD/FD (Aug 2016)	4	2016	4	2016
ILS-S Software Modification - Re-Platform MS B (Feb 2015)	2	2015	2	2015
ILS-S Software Modification - Re-Platform Award (Apr 2015)	3	2015	3	2015
ILS-S Software Modification - Re-Platform Development and Deployment	3	2015	2	2018
ILS-S Software Modification - Re-Platform LDD/IOC (May 2017)	3	2017	3	2017
ILS-S Software Modification - Re-Platform FDD/FD (Feb 2018)	2	2018	2	2018
PRPS FIAR MDD (Sep 2016)	4	2016	4	2016
PRPS Risk Reduction	1	2017	1	2017
PRPS FIAR MS B (Jan 2017)	2	2017	2	2017
PRPS FIAR Contract Award (Feb 2017)	2	2017	2	2017
PRPS FIAR Development and Deployment	2	2017	3	2018
PRPS FIAR LDD/IOC (Mar 2018)	2	2018	2	2018

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0708610F / <i>Logistics Information Technology (LOGIT)</i>	Project (Number/Name) 675207 / <i>Logistics IT System Modernization</i>
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Events	Start		End	
	Quarter	Year	Quarter	Year
PRPS FIAR FDD/FD (Jun 2018)	3	2018	3	2018
AFEMS FIAR (1) Development and Deployment	1	2015	4	2015
AFEMS FIAR(1) LDD/IOC (Jul 2015)	4	2015	4	2015
AFEMS FIAR (2) Development and Deployment	1	2015	2	2016
AFEMS FIAR (2) LDD (Feb 2016)	2	2016	2	2016
AFEMS FIAR (3) Development and Deployment	1	2015	3	2016
AFEMS FIAR (3) LDD (Jun 2016)	3	2016	3	2016
AFEMS FIAR Inc2 MS B (Jan 2016)	2	2016	2	2016
AFEMS FIAR Inc2 Contract Award (Jun 2016)	3	2016	3	2016
AFEMS FIAR Inc2 (1) Development and Deployment	3	2016	3	2017
AFEMS FIAR Inc2 (1) LDD (Jun 2017)	3	2017	3	2017
AFEMS FIAR Inc2 (2) Development and Deployment	3	2016	4	2017
AFEMS FIAR Inc2 (2) LDD (Sep 2017)	4	2017	4	2017
AFEMS FIAR Inc2 (3) Development and Deployment	1	2017	3	2018
AFEMS FIAR Inc2 (3) FDD/FD (May 2018)	3	2018	3	2018
AFEMS SUP MDD (Feb 2017)	2	2017	2	2017
AFEMS SUP Risk Reduction	2	2017	2	2017
AFEMS SUP MS B (Mar 2017)	2	2017	2	2017
AFEMS SUP Contract Award (Apr 2017)	3	2017	3	2017
AFEMS SUP Development and Deployment	3	2017	4	2018
AFEMS SUP LDD/IOC (Jul 2018)	4	2018	4	2018
AFEMS SUP FDD/FD (Aug 2018)	4	2018	4	2018
ETIMS Software Upgrade Enhancements MDD (Feb 2016)	2	2016	2	2016
ETIMS Software Upgrade Enhancements Risk Reduction Phase	2	2016	3	2016
ETIMS Software Upgrade Enhancements Phase I MS B (May 2016)	3	2016	3	2016

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0708610F / <i>Logistics Information Technology (LOGIT)</i>	Project (Number/Name) 675207 / <i>Logistics IT System Modernization</i>
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Events	Start		End	
	Quarter	Year	Quarter	Year
ETIMS Software Upgrade Enhancements Phase I Contract Award (Jul 2016)	4	2016	4	2016
ETIMS Software Upgrade Enhancements Development and Deployment	4	2016	4	2018
ETIMS Software Upgrade Enhancements FDD/FD (Jul 2018)	4	2018	4	2018
EMOC Software Upgrade Development and Deployment	1	2015	1	2017
EMOC Software Upgrade FDD (Sep 2016)	1	2017	1	2017
EMOC Software Upgrade FD (Sep 2016)	1	2017	1	2017
IMDS CDB Software Upgrade MDD (Mar 2017)	2	2017	2	2017
IMDS CDB Software Upgrade Risk Reduction	2	2017	4	2017
IMDS CDB Software Upgrade MS B (Jul 2017)	4	2017	4	2017
IMDS CDB Software Upgrade Contract Award (Sep 2017)	4	2017	4	2017
IMDS CDB Software Upgrade Development and Deployment	1	2018	4	2018
IMDS CDB Software Upgrade LDD/IOC (Sep 2018)	1	2019	1	2019
IMDS CDB Software Upgrade (1) Contract Award (Jul 2018)	4	2018	4	2018
IMDS CDB Software Upgrade (1) Development and Deployment	4	2018	4	2019
IMDS CDB Software Upgrade (1) FDD (Aug 2019)	4	2019	4	2019
IMDS CDB Software Upgrade (1) FD (Sep 2019)	4	2019	4	2019
IMDS CDB MSAT Software Upgrade MDD (Oct 2014)	1	2015	1	2015
IMDS CDB MSAT Software Upgrade Risk Reduction	1	2015	3	2016
IMDS CDB MSAT Software Upgrade MS B (Apr 2016)	3	2016	3	2016
IMDS CDB MSAT Software Upgrade Contract Award (Jun 2016)	3	2016	3	2016
IMDS CDB MSAT Software Upgrade Development and Deployment	3	2016	2	2018
IMDS CDB MSAT Software Upgrade LDD/IOC (Mar 2018)	2	2018	2	2018
IMDS CDB MSAT Software Upgrade FDD (Apr 2018)	3	2018	3	2018
IMDS CDB MSAT Software Upgrade FD (June 2018)	3	2018	3	2018
REMIS Software Upgrade Contract Award (Nov 2014)	1	2015	1	2015

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force **Date:** February 2016

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Events	Start		End	
	Quarter	Year	Quarter	Year
REMIS Software Upgrade Development & Deployment	1	2015	3	2017
REMIS Software Upgrade LDD/IOC (Feb 2017)	2	2017	2	2017
REMIS Software Upgrade FDD/FD (Apr 2017)	3	2017	3	2017
SCS FIAR CCA/MS B/Award (Nov 2014)	1	2015	1	2015
SCS FIAR (2) Development and Deployment	1	2015	1	2016
SCS FIAR (2) LDD/IOC (Nov 2015)	1	2016	1	2016
SCS FIAR (3) Development and Deployment	3	2015	2	2016
SCS FIAR (3) LDD (Mar 2016)	2	2016	2	2016
SCS FIAR (4) Development and Deployment	4	2015	3	2016
SCS FIAR (4) LDD (May 2016)	3	2016	3	2016
SCS FIAR (5) Development and Deployment	4	2015	4	2016
SCS FIAR (5) LDD (Jul 2016)	4	2016	4	2016
SCS FIAR (6) Development and Deployment	4	2015	4	2016
SCS FIAR (6) LDD (Sep 2016)	4	2016	4	2016
SCS FIAR (7) Development and Deployment	2	2016	1	2018
SCS FIAR (7) FDD/FD (Nov 2017)	1	2018	1	2018
SCS SUP MDD (Jun 2017)	3	2017	3	2017
SCS SUP Risk Reduction	3	2017	4	2017
SCS SUP MS B (Aug 2017)	4	2017	4	2017
SCS SUP Contract Award (Sept 2017)	4	2017	4	2017
SCS SUP Development and Deployment	4	2017	3	2020
SCS SUP LDD/IOC (Dec 2019)	1	2020	1	2020
SCS SUP FDD/FD (Jun 2020)	3	2020	3	2020
SCM - Supply MDD (Sep 2017)	3	2017	3	2017
SCM - Supply Materiel Solutions Analysis	1	2016	3	2017

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force **Date:** February 2016

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Events	Start		End	
	Quarter	Year	Quarter	Year
SCM - Supply Risk Reduction	3	2017	4	2019
SCM - Supply MS B (Sep 2019)	4	2019	4	2019
SCM - Supply Development and Deployment	1	2020	4	2021
SCM- Supply IOC (Apr 2020)	3	2020	3	2020
SCM- Item Master MDD (Sep 2016)	4	2016	4	2016
SCM - Item Master Materiel Solutions Analysis	1	2016	4	2016
SCM - Item Master Risk Reduction	1	2017	2	2018
SCM- Item Master MS B (May 2018)	3	2018	3	2018
SCM- Item Master Development and Deployment	3	2018	2	2021
SCM- Item Master FDD (May 2020)	3	2020	3	2020
SCM - Item Master FD (Mar 2021)	2	2021	2	2021
SCM - GFM Accountability MDD (Jan 2016)	2	2016	2	2016
SCM GFM Accountability Materiel Solutions Analysis	2	2016	2	2016
SCM - GFM Accountability Development and Deployment	3	2016	1	2018
SCM - GFM Accountability IOC/FDD (Sep 2016)	4	2016	4	2016
SCM- GFM Accountability FD (Oct 2017)	1	2018	1	2018
MRO Risk Reduction	1	2015	2	2016
MRO MS A/B (May 2016)	3	2016	3	2016
MRO Contract Award (Jun 2016)	3	2016	3	2016
MRO R1 Development and Deployment	4	2016	2	2019
MRO R1 IOC (Mar 2019)	2	2019	2	2019
MRO R2 Development and Deployment	2	2018	4	2019
MRO R2 FD (Sep 2019)	4	2019	4	2019
MRO R3 Development and Deployment	3	2019	4	2020
MRO R3 FD (Aug 2020)	4	2020	4	2020

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0708610F / <i>Logistics Information Technology (LOGIT)</i>	Project (Number/Name) 675207 / <i>Logistics IT System Modernization</i>
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Events	Start		End	
	Quarter	Year	Quarter	Year
MRO R4 Development and Deployment	1	2020	2	2021
MRO R4 FD (Jan 2021)	2	2021	2	2021
PLM MDD (Dec 2016)	1	2016	1	2016
PLM Risk Reduction	2	2016	1	2017
PLM MS B (Jun 2018)	3	2018	3	2018
PLM Milestone Contract Award (Aug 2018)	4	2018	4	2018
PLM Development and Deployment	2	2017	2	2020
PLM LDD (Jun 2019)	3	2019	3	2019
PLM FDD (Dec 2020)	1	2020	1	2020
PLM FD (Mar 2020)	2	2020	2	2020
ASMIS Material Solution Analysis	3	2015	4	2016
ASIMIS Risk Reduction	4	2016	4	2017
ASMIS MS B (Nov 2017)	1	2018	1	2018
ASIMIS Contract Award (Feb 2018)	2	2018	2	2018
ASIMIS Development and Deployment	2	2018	1	2021
ASIMIS LDD/IOC (Jun 2020)	3	2020	3	2020
ASIMIS FDD/FD (Nov 2021)	1	2021	1	2021
WSMIS SUP (2) MDD (Apr 2017)	3	2017	3	2017
WSMIS SUP (2) Risk Reduction	3	2017	4	2017
WSMIS SUP (2) MS B (Aug 2017)	4	2017	4	2017
WSMIS SUP (2) Award (Nov 2017)	1	2018	1	2018
WSMIS SUP (2) Development and Deployment	1	2018	4	2018
WSMIS SUP (2) IOC/FDD/FD (Sep 2018)	4	2018	4	2018

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0708611F / <i>Support Systems Development</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	-	15.209	12.107	9.128	0.000	9.128	9.334	9.527	9.738	9.948	Continuing	Continuing
673318: <i>Product Data Systems Modernization (PDSM)</i>	-	0.512	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.512
675042: <i>Log Application Logisitcs Integration (LALI)</i>	-	14.697	12.107	9.128	0.000	9.128	9.334	9.527	9.738	9.948	Continuing	Continuing

A. Mission Description and Budget Item Justification

This program element contains two active projects [project 673318, Product Data System Modernization (PDSM), and project 675042, Logistics Application Logistics Integration (LALI)].

Project 673318: PDSM funds modifications to the Enhanced Technical Information System (ETIMS) Enterprise, which supports Air Force Technical Order management, storage and distribution critical to depot maintenance activities. ETIMS activities include studies and analysis to support both current and future program planning and program execution to include Nuclear Weapons Related Material (NWRM) technical data requirements.

Note: In FY 2016, PE 0708611 Support Systems Development, Project 673318, Product Data Systems Modernization efforts transferred to PE 0708610F, Logistics Information Technology (Log IT), Project 675207 to align with the Enhanced Technical Information Management System (ETIMS) modification efforts funded within the Log IT PE.

Project 675042: LALI includes funding for Logistics, Installations and Mission Support - Enterprise View (LIMS-EV) and F-35 User IT Data Exchange Service (UIDES).

Logistic, Installations and Mission Support - Enterprise View (LIMS-EV) implements Business Intelligence(BI) and Decision Support(DS) solutions and includes transitioning to a common Information Technology(IT) hosting environment and development of mobile infrastructure. The AF must transform its logistics business processes and transition away from using numerous stovepipe systems and process flows that execute the same analysis and decision support tasks. Eliminating process redundancies across the logistics enterprise will enable the AF to execute more efficient, cost-effective and integrated logistics in the long term. Leveraging emerging technology to enhance existing capabilities and developing a mobile solution satisfies current and future needs of the enterprise. LIMS-EV funding supports Business Intelligence (BI) and decision support development capability used by senior leaders and war fighters to access integrated information from multiple logistics and operational source systems. LIMS-EV funding will extend current BI capabilities to provide configurable alerting, predictive/what-if analysis, mobile applications and further integration of support equipment, vehicle, supply, commodities and components (engines, landing gears, fuel, etc.) to increase weapons systems availability and Total Asset Visibility (TAV) and migrates the LIMS-EV functionality from the retiring Global Combat Support System-Air Force (GCSS-AF) infrastructure to a an approved Joint Information Environment/Common Computing Environment.

FY2016 Plan

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0708611F / <i>Support Systems Development</i>	
<p>1) LIMS-EV Vehicle View 5.2 - migrate the legacy data sources from the Online Vehicle Information Management System to Defense Property Accountability System (DPAS). The applications, reports and capabilities will be modified/migrated to using data sourced from DPAS. Included in the data migration is the ability to expose the DPAS data in Business Objects (BOBJ). This release also includes the development new functionality; the Transaction Request Tool which includes the ability for fleet managers to update, load, and move assets, as well as complete resale requests.</p> <p>2) LIMS-EV Equipment View 4.6 - Implement the remaining metrics not included in release 4.4 (less the Command Equipment Management Office (CEMO) metrics) – primarily associated with the new Redistribution and Mass Additive functionality. This release also corrects discrepancy reports from Release 4.0 (Redistribution and Mass Additive functionality) Metrics include: -- Provides the ability to report CEMO, 404 Supply Chain Management Office (SCMS), and Fill Rate Metrics -- Applies data from Mal-Positioned Assets, Repair Execution, Retention Additives & Disposals and Replacement Additives actions as well as user-entered input to calculate / present the defined metrics</p> <p>3) LIMS-EV Repair Network View (RNV) 4.0 - provides leadership view of Repair Network Integration (RNI) Metrics. This release will provide a permanent Capability and Capacity (CAP2) Information Technology (IT) Tool and simulation capability to assist Repair Network managers in making resource allocation decisions. Some examples include: -- Support equipment prices for each equipment asset pulled from Air Force Equipment Management System (AFEMS) -- Quality Deficiency Report (QDR) data pulled from each node from Joint Deficiency Reporting System (JDRS) -- Depot level production -- Contract data reporting National Stock Numbers (NSNs) repaired at contractors from Contracting Information Database System (CIDS/J018) or CAV-AF</p> <p>4) LIMS-EV Enterprise Mobile Viewer - focused on supporting the use of mobile device technology, with the first phase focusing on integrating four LIMS-EV Vehicle View widgets. The release also enhances some of the existing capability, such as modifying the Prioritization Buy capability to support Item Manager functionality.</p> <p>5) LIMS-EV Weapons System Enterprise Review (WSER) - automate the AF Chief of Staff briefing (CSAF) (9 charts per WSER weapon system) that is delivered quarterly by Air Force Life Cycle Management Center Commander (AFLCMC/CC) to Air Force Materiel Command Commander (AFMC/CC), Major Commands (MAJCOMs), and other key stakeholders. WSER content includes Performance Execution (availability, engines, and aircraft delivery quality); Modernization Overall (cost, schedule, performance, and funding); Product Support (Logistics Health Assessment (LHA) and Leading Health Indicator (LHI) (engines)); Predictive Health (safety, service life, mission effectiveness, and weapon system sustainment (WSS) risk); and Operating Cost</p> <p>FY 2017 Plan</p>		

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0708611F / <i>Support Systems Development</i>	
<p>1) LIMS-EV Engine Health Management and Data Repository Center (EHM-DRC) - migrate an EHM-DRC to GCSS-AF infrastructure and leverage GCSS-AF Enterprise Data Warehouse for data storage and interfaces as well as decision support capabilities to expose and analyze expanded engine health data to improve the reliability and performance.</p> <p>2) LIMS-EV Repair Network View (RNV) 5.0 - address deficiencies in the RNV capability. Updates include correcting an existing reference table, creating additional repair nodes, adding a frequency column to the "data source" area of view, mapping to different reference tables, and correcting issues with the Extract, Transform, and Load procedures.</p> <p>3) LIMS-EV Supply Chain Management View 7.0 - provide enhanced reports, queries, and views. Specifics includes reporting/ability to distinguish United States Air Force (USAF) backorders, production number (PDN) Search in Edit box , Ability to add Incremental/auto fill PDN Drop Down In Default Analysis or Create PDN Analysis Report, NSN Entry Conversion, adds "PMS" to Default "Role" Selector & Select Single or Multiple, repairs the "ADD" Function - Manual Ability To Input The Repair Data For An Item That is Contract Repair or public/private partnership (PPP), and allows user to identify mission capable (MICAP) requisitions likely to have hours that should be stopped or backed out are identified throughout the month using the automated report identified in this requirements document.</p> <p>4) LIMS-EV Support Equipment Enterprise View - provide real time fleet summary of support equipment (SE) assets (ex. fully mission capable, partially mission capable, not mission capable). Emulates the same metrics that are used for LIMS-EV Fleet Asset Status and Weapon System View. SE community will be able to track status and location of SE assets by mission designator (MD), mission designator series (MDS), and Equipment ID. Capability also Enables a priority buy capability –similar to LIMS-EV Vehicle View - better calculations for predicting asset service cliffs.</p> <p>5) LIMS-EV Cost of Logistics (COL) 2.0 - address change request and deficiency reports in the COL Capability, integrate variance tool, and update the existing dashboard. Updates include providing the user the ability to export reports from the view (instead of having to export from BOBJ), Corrects the existing issue with the export feature, fixes the tool tips, modifies the "Data Source" area on the screen to include a "frequency column", renames some views, corrects the "Base" filter.</p> <p>6) LIMS-EV Vehicle View 6.0 - enable Vehicle Support Chain Operations Squadron (VSCOS) Installation Support Centralization (ISC) Initiative. ISC is a CSAF directed action to centralize management of the Air Forces' vehicle fleet at Air Force Element (AFELM) VSCOS. The ISC initiative centralizes 55 processes from the MAJCOM's to one central source within VSCOS. Some of the enhancements include; Alerts and Event Management (AEM) Integration, enables same look and feel for verification/validation that exists in latest LIMS-EV capabilities, applies hover overs on fields across the application, enables query tracking, enhances Item Manager functions, and provides a Depot Maintenance planning model.</p> <p>7) LIMS-EV Enterprise Propulsion Business Intelligence (BI) Tool - provide engine managers with the ability to forecast engine and component removals, identify business process gaps, consolidate existing applications/tools, and provide metrics and analysis for existing or new engines based on Thrust, Weight, Fuel, Cost, etc. Migrate manual products generated by the actuary's office.</p> <p>F-35 UIDES provides for Air Force development of a F-35 Autonomic Logistics Information System (ALIS) - User IT Data Exchange Service that supports current and future Information Exchange Requirement (IER) data transfer capability from the F-35 ALIS into data reports and configurable tables to receive, store and integrate</p>		

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0708611F / <i>Support Systems Development</i>
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F-35 operations, maintenance, training and financial data within existing Air Force enterprise views to support the growing fleet of AF F-35 aircraft. Funding supports modification of an enhanced data sharing capability (ability to consume increased volume and variety of ALIS IER data) to support depot data configuration and integration requirements. Activities also include studies and analysis to support both current program/project planning and execution and future program/project planning.

Note: In FY 2016, PE 0708611 Support Systems Development, Project Number 675042, Logistics Application Logistics Integration (LALI), the F-35 User Identification Data Exchange System (UIDES) effort was transferred to PE 0604800F, F-35 Lightning II Joint Strike Fighter, in order to align the activity under the F-35 RDT&E Program Element.

This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	15.712	12.657	12.456	0.000	12.456
Current President's Budget	15.209	12.107	9.128	0.000	9.128
Total Adjustments	-0.503	-0.550	-3.328	0.000	-3.328
• Congressional General Reductions	0.000	-0.550			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-0.503	0.000			
• Other Adjustments	0.000	0.000	-3.328	0.000	-3.328

Change Summary Explanation

FY15: Reduction for SBIR

FY16: Reduction for FFRDC

FY17: Reduction supports modernization efforts for higher priority legacy logistics information technology systems

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0708611F / <i>Support Systems Development</i>	Project (Number/Name) 673318 / <i>Product Data Systems Modernization (PDSM)</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
673318: <i>Product Data Systems Modernization (PDSM)</i>	-	0.512	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.512
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

Project 673318, PDSM supports funding for Air Force Technical Order functionality through the continued enhancement of the Enhanced Technical Information System (ETIMS) Enterprise. Development of the ETIMS project across the FYDP will be continued as part of the remediation/modernization/transformation approach for AF Logistics IT. For specific details on this project see PE 0708610F.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2015	FY 2016	FY 2017
Title: Enhanced Technical Information Management System (ETIMS) Software Upgrade	0.512	0.000	0.000
Description: Modify ETIMS software to incorporate Joint Computer-Aided Acquisition and Logistics Support (JCALS) functionality and integrate additional ETIMS enhancements. Effort previously titled: ETIMS Software Upgrade.			
FY 2015 Accomplishments: Initiated enhancement activities to continue ETIMS Software Upgrade.			
FY 2016 Plans: Project 673318, Product Data Systems Modernization efforts transferred to PE 0708610F, Logistics Information Technology (Log IT), Project 675207 to align with the Enhanced Technical Information Management System (ETIMS) modification efforts funded within the Log IT PE.			
FY 2017 Plans: N/A			
Accomplishments/Planned Programs Subtotals	0.512	0.000	0.000

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

N/A

Remarks

D. Acquisition Strategy

The acquisition strategy for ETIMS is to award on a firm-fixed price basis utilizing a competitive, best-value criteria as appropriate.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0708611F / <i>Support Systems Development</i>	Project (Number/Name) 673318 / <i>Product Data Systems Modernization (PDSM)</i>

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0708611F / <i>Support Systems Development</i>	Project (Number/Name) 673318 / <i>Product Data Systems Modernization (PDSM)</i>
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Manage and Support Technical Data Services	C/FP	NGIT : Wright-Patterson AFB, OH	-	0.512	Sep 2015	0.000		0.000		0.000		0.000	0.000	0.512	-
Subtotal			-	0.512		0.000		0.000		0.000		0.000	0.000	0.512	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

			Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	0.512	0.000	0.000	0.000	0.000	0.000	0.512	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0708611F / <i>Support Systems Development</i>	Project (Number/Name) 673318 / <i>Product Data Systems Modernization (PDSM)</i>

	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

ETIMS Software Upgrade Enhancements Phase I CCA				■																								
ETIMS Software Upgrade Enhancements Phase I MS B (Sep 2015)				■																								

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0708611F / <i>Support Systems Development</i>	Project (Number/Name) 673318 / <i>Product Data Systems Modernization (PDSM)</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
ETIMS Software Upgrade Enhancements Phase I CCA	4	2015	4	2015
ETIMS Software Upgrade Enhancements Phase I MS B (Sep 2015)	4	2015	4	2015

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force										Date: February 2016		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0708611F / <i>Support Systems Development</i>				Project (Number/Name) 675042 / <i>Log Application Logistics Integration (LALI)</i>			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
675042: <i>Log Application Logistics Integration (LALI)</i>	-	14.697	12.107	9.128	0.000	9.128	9.334	9.527	9.738	9.948	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Logistic, Installations and Mission Support - Enterprise View (LIMS-EV) implements Business Intelligence(BI) and Decision Support(DS) solutions and includes transitioning to a common Information Technology(IT) hosting environment and development of mobile infrastructure. The AF must transform its logistics business processes and transition away from using numerous stovepipe systems and process flows that execute the same analysis and decision support tasks. Eliminating process redundancies across the logistics enterprise will enable the AF to execute more efficient, cost-effective and integrated logistics in the long term. Leveraging emerging technology to enhance existing capabilities and developing a mobile solution satisfies current and future needs of the enterprise. LIMS-EV funding supports Business Intelligence (BI) and decision support development capability used by senior leaders and war fighters to access integrated information from multiple logistics and operational source systems. LIMS-EV funding will extend current BI capabilities to provide configurable alerting, predictive/what-if analysis, mobile applications and further integration of support equipment, vehicle, supply, commodities and components (engines, landing gears, fuel, etc.) to increase weapons systems availability and Total Asset Visibility (TAV) and migrates the LIMS-EV functionality from the retiring Global Combat Support System-Air Force (GCSS-AF) infrastructure to a an approved Joint Information Environment/Common Computing Environment.

F-35 UIDES provides for Air Force development of a F-35 Autonomic Logistics Information System (ALIS) - User IT Data Exchange Service that supports current and future Information Exchange Requirement (IER) data transfer capability from the F-35 ALIS into data reports and configurable tables to receive, store and integrate F-35 operations, maintenance, training and financial data within existing Air Force enterprise views to support the growing fleet of AF F-35 aircraft. Funding supports modification of an enhanced data sharing capability (ability to consume increased volume and variety of ALIS IER data) to support depot data configuration and integration requirements. Activities also include studies and analysis to support both current program/project planning and execution and future program/project planning.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2015	FY 2016	FY 2017
Title: LIMS-EV Projects (FY2015)	6.145	0.000	0.000
Description: Logistics, Installations and Mission Support - Enterprise View (LIMS-EV) funding supports Business Intelligence (BI) development of a dashboard capability used by senior leaders to access integrated, one-version-of truth information from multiple source systems. LIMS-EV funding will extend current BI capabilities to provide configurable alerting, predictive analysis, what-if analysis and further integration of support equipment, vehicle, supply, commodities and components (engines, landing gears, fuel, etc) to increase weapons systems availability and Total Asset Visibility (TAV).			
FY 2015 Accomplishments:			

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016		
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0708611F / <i>Support Systems Development</i>	Project (Number/Name) 675042 / <i>Log Application Logistics Integration (LALI)</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2015	FY 2016	FY 2017
<p>Delivered the Business Intelligence and decision support capabilities listed below:</p> <ul style="list-style-type: none"> • Depot Maintenance View 1.1 - source for current and historical depot maintenance information; data is available for aircraft/ equipment availability, maintenance, inventory, execution and supportability analysis. • Cost of Logistics 1.0 - (formerly known as Predictive Analysis) - automation of the Logistics Cost Model based on the Logistics Cost Reference Document. • Supply Chain Management 6.1 [AF Supply Chain Data Base] - tool built on BOBJ that delivers a wide variety of prebuilt and ad-hoc supply chain reports and analysis. • Equipment View 4.0 - provides an AF-wide total asset visibility tool for Support Equipment via aggregation of data from multiple data sources. • Engines View 2.2 - intuitive/flexible analysis tool of near real time and historical War Reserve Engine, Base Stock Level, Engine Not Mission Capable Supply, Customer Wait Time and critical status, inventory, and supply reports. • Weapons System View 7.1 [F-35 Integration] - incorporate F-35 data from Autonomic Logistics Information System into Weapons System View and Fleet Asset Status. <p>FY 2016 Plans: LIMS-EV projects are broken out in separate Major Thrusts starting in FY16 for additional visibility.</p> <p>FY 2017 Plans: LIMS-EV projects are broken out in separate Major Thrusts starting in FY16 for additional visibility.</p>				
<p>Title: LIMS-EV Vehicle View (VV) 5.2</p> <p>Description: Migrate data source to Defense Property Accountability System (DPAS)</p> <p>FY 2015 Accomplishments: Completed enhancement of LIMS-EV VV.</p> <ul style="list-style-type: none"> • Migrated the legacy data sources to the Defense Property Accountability System (DPAS) for the LIMS-EV Vehicle View (VV) application. • Updated VV application's reports and capabilities to be migrated to using data sourced from DPAS • Exposed DPAS data in Business Objects (BOBJ) • Implemented new search capability for VV • Added numeric Vehicle values to the Mission Capability Metrics • Added the ability to view the Mission Capability Report by day for the last 60 days due to the DPAS migration. • Modified the Extract, Transfer, & Load (ETL) request change for Due-In screen to daily 		1.747	1.501	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016		
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0708611F / <i>Support Systems Development</i>	Project (Number/Name) 675042 / <i>Log Application Logistics Integration (LALI)</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2015	FY 2016	FY 2017
<ul style="list-style-type: none"> • Added the ability to view current Due-In data based on the most current data available • Developed a Transaction Request functionality based on the following six request types: Update Asset, Load Asset, Excess, Move (Rotate), Multi, 601 Add, and Ship/Redistribution Order (RDO) <p>FY 2016 Plans: Continue to migrate the legacy data sources from the Online Vehicle Information Management System (OLVIMS) to DPAS. The applications, reports and capabilities will be modified/migrated to using data sourced from DPAS. Included in the data migration is the ability to expose the DPAS data in BOBJ. This release also includes the development new functionality; the Transaction Request Tool which includes the ability for fleet managers to update, load, and move assets, as well as complete resale requests.</p> <p>FY 2017 Plans: N/A</p>				
<p>Title: LIMS-EV Equipment View (EV) 4.6</p> <p>Description: Implement critical metrics associated with the new Redistribution and Mass Additive functionality</p> <p>FY 2015 Accomplishments: Enhanced Equipment View as follows</p> <ul style="list-style-type: none"> • Modified the Program Objectives Memorandum (POM) View Commodity Grouping to resolve an existing error • Enhanced the Dashboard Views to Adjust Cost • Added Top 10 Grid Header • Added a new Export Dropdown Menu • Added the Fill Rate Cost Category and Subcategory Level • Modified the Export Results • Implemented Cascading Menus • Implemented Tool Tips • Added POM scenario Impact Statements for FY and scenario • Enhanced the capabilities Drop Down that Duplicates Vehicle View (SQL Error) • Modified the Help (?) Information • Added metrics: Chief Financial Office (CFO) Non-Compliance, Support Equipment Variances, Support Equipment Rejects, Delinquent Equipment Inventory Accounts, Equipment Accountable Element (EAE) Visits, Use Code A (Mobility) Assets without a Unit Type Code (UTC) • Enhanced Leadership Tab Retail Filter Allowance Source Code • Enhanced Leadership Filters selection not carrying over to Equipment Management 		1.747	1.501	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016		
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0708611F / <i>Support Systems Development</i>	Project (Number/Name) 675042 / <i>Log Application Logistics Integration (LALI)</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2015	FY 2016	FY 2017
<ul style="list-style-type: none"> • Modified POM Tab Baseline and Completed WRM Data Alignment <p>FY 2016 Plans: Continue to implement the remaining metrics not included in release 4.4 – primarily associated with the new Redistribution and Mass Additive functionality. This release also modifies/enhances reports from Release 4.0 (Redistribution and Mass Additive functionality). Metrics include: -- Provides the ability to report Command Equipment Management Office (CEMO), 404 Supply Chain Management Squadron (SCMS), and Fill Rate Metrics -- Applies data from Mal-Positioned Assets, Repair Execution, Retention Additives & Disposals and Replacement Additives actions as well as user-entered input to calculate / present the defined metrics</p> <p>FY 2017 Plans: N/A</p>				
<p>Title: LIMS-EV Repair Network View 4.0</p> <p>Description: Develop a leadership view of Repair Network Integration (RNI) Metrics</p> <p>FY 2015 Accomplishments: N/A</p> <p>FY 2016 Plans: Develop leadership view of Repair Network Integration (RNI) metrics. This release will provide a permanent Capability and Capacity (CAP2) Information Technology (IT) Tool and simulation capability to assist Repair Network managers in making resource allocation decisions. Some examples include: -- Support equipment prices for each equipment asset pulled from Air Force Equipment Management System (AFEMS) -- Quality Deficiency Report (QDR) data pulled from each node from Joint Deficiency Reporting System (JDORS) -- Depot level production from IMPRESA (MROi) or Job Order Production Master System (JOPMS) G004L -- Contract data reporting National Stock Numbers (NSNs) repaired at contractors from Contracting Information Database System (CIDS/J018) or Commercial Asset Visibility Air Force (CAV AF)</p> <p>FY 2017 Plans: N/A</p>		0.000	3.236	0.000
<p>Title: LIMS-EV Enterprise Mobile Viewer 1.0</p> <p>Description: Develop a capability to support the use of mobile device technology, with the first phase focusing on integrating four LIMS-EV Vehicle View widgets</p>		0.000	3.236	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016		
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0708611F / <i>Support Systems Development</i>	Project (Number/Name) 675042 / <i>Log Application Logistics Integration (LALI)</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2015	FY 2016	FY 2017
<p>FY 2015 Accomplishments: N/A</p> <p>FY 2016 Plans: Develop capability to support the use of mobile device technology, with the first phase focusing on integrating four LIMS-EV Vehicle View widgets. Release enhances some of the existing capability, such as modifying the Prioritization Buy capability to support Item Manager functionality.</p> <p>FY 2017 Plans: N/A</p>				
<p>Title: LIMS-EV Weapons System Enterprise Review (WSER)</p> <p>Description: Automate the AF Chief of Staff briefing (9 charts per WSER weapon system)</p> <p>FY 2015 Accomplishments: N/A</p> <p>FY 2016 Plans: Automate the AF Chief of Staff briefing (9 charts per WSER weapon system) that is delivered quarterly by AFLCMC/CC to AFMC/CC, MAJCOMs, and other key stakeholders. WSER content includes Performance Execution (availability, engines, and aircraft delivery quality); Modernization Overall (cost, schedule, performance, and funding); Product Support (Logistics Health Assessment (LHA) and Leading Health Indicator (LHI) (engines)); Predictive Health (safety, service life, mission effectiveness, and weapon system sustainment (WSS) risk); and Operating Cost.</p> <p>FY 2017 Plans: N/A</p>		0.000	2.633	0.000
<p>Title: LIMS-EV Enterprise Mobile Viewer 1.1</p> <p>Description: Develop a capability to support the use of mobile device technology by four LIMS-EV Vehicle View widgets</p> <p>FY 2015 Accomplishments: N/A</p> <p>FY 2016 Plans: N/A</p> <p>FY 2017 Plans:</p>		0.000	0.000	0.432

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016		
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0708611F / <i>Support Systems Development</i>	Project (Number/Name) 675042 / <i>Log Application Logisitics Integration (LALI)</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2015	FY 2016	FY 2017
Develop the mobile device technology for four LIMS-EV Vehicle View widgets to be accessed via USA/DoD-approved mobile devices and security.				
Title: LIMS-EV Engine Health Management and Data Repository Center (EHM-DRC) Description: Migration of Engine Health Management and Data Repository Center into LIMS-EV FY 2015 Accomplishments: N/A FY 2016 Plans: N/A FY 2017 Plans: Migrate an Engine Health Management Data Repository Center (EHM-DRC) to GCSS-AF infrastructure and leverage GCSS-AF Enterprise Data Warehouse for data storage and interfaces as well as decision support capabilities to expose and analyze expanded engine health data to improve the reliability and performance.		0.000	0.000	1.757
Title: LIMS-EV Repair Network View 5.0 Description: Enhance Repair Network View (RNV) capability FY 2015 Accomplishments: N/A FY 2016 Plans: N/A FY 2017 Plans: Enhance RNV by modifying existing reference tables, creating additional repair nodes, adding a frequency column to the "data source" area of view, mapping to different reference tables, and correcting issues with the Extract, Transform, and Load procedures.		0.000	0.000	0.879
Title: LIMS-EV Supply Chain Management 7.0 Description: Enhance Supply Chain Management (SCM) View FY 2015 Accomplishments: N/A FY 2016 Plans:		0.000	0.000	0.879

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016		
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0708611F / <i>Support Systems Development</i>	Project (Number/Name) 675042 / <i>Log Application Logistics Integration (LALI)</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2015	FY 2016	FY 2017
N/A				
<p>FY 2017 Plans: Develop enhanced reports, queries, and views to include reporting and ability to distinguish USAF backorders; add Production Number (PDN) search in Edit box; ability to add incremental/auto fill PDN (4-digit national item identifier number (NIIN) query) drop down in Default Analysis; create PDN Analysis Report; provide national stock number (NSN) entry conversion to accommodate hand-typed NSN.</p>				
<p>Title: LIMS-EV Support Equipment Enterprise View Description: Develop Support Equipment Enterprise View</p>		0.000	0.000	1.757
<p>FY 2015 Accomplishments: N/A</p> <p>FY 2016 Plans: N/A</p> <p>FY 2017 Plans: Develop a real time fleet summary of Support Equipment assets (ex. fully mission capable, partially mission capable, not mission capable). Emulate the same metrics that are used for LIMS-EV Fleet Asset Status and Weapon System View. Support Equipment (SE) community will be able to track status and location of SE assets (Full Mission Capable (FMC), Not Mission Capable (NMC), Partially Mission Capable (PMC)...) by Mission Designator (MD), Mission Designator Series (MDS), and Equipment identifier (ID). Capability also Enables a priority buy capability – similar to LIMS-EV Vehicle View - better calculations for predicting asset service cliffs.</p>				
<p>Title: LIMS-EV Cost of Logistics 2.0 Description: Enhance Cost of Logistics capability</p>		0.000	0.000	0.879
<p>FY 2015 Accomplishments: N/A</p> <p>FY 2016 Plans: N/A</p> <p>FY 2017 Plans: Address change request and deficiency reports in the Cost of Logistics capability, integrate variance tool, and update the existing dashboard. Updates include providing the user the ability to export reports from the view (instead of having to export from BOBJ),</p>				

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016		
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0708611F / <i>Support Systems Development</i>	Project (Number/Name) 675042 / <i>Log Application Logistics Integration (LALI)</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2015	FY 2016	FY 2017
Corrects the existing issue with the export feature, fixes the tool tips, modifies the "Data Source" area on the screen to include a "frequency column", renames some views, and corrects the "Base" filter functionality.				
<p>Title: LIMS-EV Vehicle View 6.0</p> <p>Description: Enhance Vehicle View capability</p> <p>FY 2015 Accomplishments: N/A</p> <p>FY 2016 Plans: N/A</p> <p>FY 2017 Plans: Enable Vehicle Support Chain Operations Squadron (VSCOS) Installation Support Centralization (ISC) Initiative. ISC is a CSAF directed action to centralize management of the AF's vehicle fleet at Air Force Elements (AFELM) VSCOS. The ISC initiative centralizes 55 processes from the MAJCOM's to one central source within VSCOS. Some of the enhancements include; Alerts and Event Management (AEM) Integration, enables same look and feel for VV that exists in latest LIMS-EV capabilities, applies hover overs on fields across the application, enables query tracking, enhances Item Manager functions, and provides a Depot Maintenance planning model.</p>		0.000	0.000	0.879
<p>Title: LIMS-EV Enterprise Propulsion Business Intelligence Tool</p> <p>Description: Develop Enterprise Propulsion Business Intelligence Tool in LIMS-EV</p> <p>FY 2015 Accomplishments: N/A</p> <p>FY 2016 Plans: N/A</p> <p>FY 2017 Plans: Develop Enterprise Propulsion BI Tool to enable engine managers with the ability to forecast engine and component removals, identify business process gaps, consolidate existing applications/tools, and provide metrics and analysis for existing or new engines based on Thrust, Weight, Fuel, Cost, etc. Migrate manual products generated by the actuary's office.</p>		0.000	0.000	1.666
<p>Title: F-35 ALIS-UIDES Integration</p> <p>Description: Funding for F-35 UIDES will continue Air Force development of a F-35 Autonomic Logistics Information System (ALIS) - User IT Data Exchange Service that supports current and future Information Exchange Requirement (IER) data</p>		5.058	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0708611F / <i>Support Systems Development</i>	Project (Number/Name) 675042 / <i>Log Application Logistics Integration (LALI)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
<p>transfer capability from the F-35 ALIS into data reports and configurable tables to receive, store and integrate F-35 operations, maintenance, training and financial data within existing Air Force enterprise views to support the growing fleet of Air Force F-35 aircraft. Funding will also support development of an enhanced data sharing capability (ability to consume increased volume and variety of ALIS IER data) to support depot data configuration and integration requirements.</p> <p><i>FY 2015 Accomplishments:</i> Continued Air Force development of a F-35 Autonomic Logistics Information System (ALIS) - User IT Data Exchange Service that supports current and future Information Exchange Requirement (IER) data transfer capability from the F-35 ALIS into data reports and configurable tables to receive, store and integrate F-35 operations, maintenance, training and financial data within existing Air Force enterprise views to support the growing fleet of Air Force F-35 aircraft. Funding will also support development of an enhanced data sharing capability (ability to consume increased volume and variety of ALIS IER data) to support depot data configuration and integration requirements.</p> <p><i>FY 2016 Plans:</i> F-35 UIDES effort realigned in FY16-out under PE 0604800F, F-35 Lightning II Joint Strike Fighter.</p> <p><i>FY 2017 Plans:</i> N/A</p>			
Accomplishments/Planned Programs Subtotals	14.697	12.107	9.128

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

N/A

Remarks

D. Acquisition Strategy

LIMS-EV will utilize services provided by Global Combat Support System Air Force (GCSS-AF) Integration Framework. GCSS-AF Data Services Program Management Office (PMO), as LIMS-EV Program Manager, is responsible to competitively acquire additional LIMS-EV capabilities using a variety of fixed price, labor hour, time and material, and cost plus contracts.

LIMS-EV capabilities utilize services provided by Global Combat Support System Air Force (GCSS-AF) Integration Framework. GCSS-AF Data Services PMO, as LIMS-EV Program Manager, manages LIMS-EV development projects following standard software development release process.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0708611F / <i>Support Systems Development</i>	Project (Number/Name) 675042 / <i>Log Application Logisitics Integration (LALI)</i>

LIMS-EV development projects will be awarded as task orders using GCSS AF 2 contract with GCSS AF Data Services Program Management Office, Wright-Patterson Air Force Base, Ohio.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0708611F / <i>Support Systems Development</i>	Project (Number/Name) 675042 / <i>Log Application Logistics Integration (LALI)</i>
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
LALI LIMS-EV Systems Engineering Contractor Support (Product Development) Depot Maintenance View 1.1; Cost of Logistics 1.0; Supply Chain Management 6.1 [AF Supply Chain Data Base]; Engines View 2.2;	C/CPFF	Lockheed Martin : Dayton, OH	-	5.621	Feb 2015	0.000		0.000		0.000		0.000	Continuing	Continuing	-
LALI LIMS-EV Systems Engineering Contractor Support (Product Development) Vehicle View 5.2	C/CPFF	Lockheed Martin : Dayton, OH	-	1.327	Feb 2015	1.227	Nov 2015	0.000	Jan 1901	0.000		0.000	Continuing	Continuing	-
LALI LIMS-EV Systems Engineer Contractor Support (Product Development) Equipment View 4.6	C/CPFF	Lockheed Martin : Dayton, OH	-	1.327	Feb 2015	1.227	Nov 2015	0.000		0.000		0.000	Continuing	Continuing	-
LALI LIMS-EV Systems Engineering Contractor Support (Product Development) Repair Network View 4.0	C/CPFF	Lockheed Martin : Dayton, OH	-	0.000		2.599	Feb 2016	0.000		0.000		0.000	Continuing	Continuing	-
LALI LIMS-EV Systems Engineering Contractor Support (Product Development) Enterprise Mobile Viewer 1.0	C/CPFF	Lockheed Martin : Dayton, OH	-	0.000		2.599	Feb 2016	0.000		0.000		0.000	Continuing	Continuing	-
LALI LIMS-EV Systems Engineering Contractor Support (Product Development) Weapons System Enterprise Review	C/CPFF	Lockheed Martin : Dayton, OH	-	0.000		2.155	Feb 2016	0.000		0.000		0.000	Continuing	Continuing	-
LALI LIMS-EV Systems Engineering Contractor	C/CPFF	Lockheed Martin : Dayton, OH	-	0.000		0.000		0.432	Feb 2017	0.000		0.432	Continuing	Continuing	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0708611F / <i>Support Systems Development</i>	Project (Number/Name) 675042 / <i>Log Application Logistics Integration (LALI)</i>
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Support (Product Development) Enterprise Mobile Viewer 1.1															
LALI LIMS-EV Systems Engineering Contractor Support (Product Development) Engine Health Management and Data Repository Center	C/CPFF	Lockheed Martin : Dayton, OH	-	0.000		0.000		1.757	Feb 2017	0.000		1.757	Continuing	Continuing	-
LALI LIMS-EV Systems Engineering Contractor Support (Product Development) Repair Network View 5.0	C/CPFF	Lockheed Martin : Dayton, OH	-	0.000		0.000		0.879	Feb 2017	0.000		0.879	Continuing	Continuing	-
LALI LIMS-EV Systems Engineering Contractor Support (Product Development) SCM View 7.0	C/CPFF	Lockheed Martin : Dayton, OH	-	0.000		0.000		0.879	Feb 2017	0.000		0.879	Continuing	Continuing	-
LALI LIMS-EV Systems Engineering Contractor Support (Product Development) SE-Enterprise View	C/CPFF	Lockheed Martin : Dayton, OH	-	0.000		0.000		1.757	Feb 2017	0.000		1.757	Continuing	Continuing	-
LALI LIMS-EV Systems Engineering Contractor Support (Product Development) Cost of Logistics 2.0	C/CPFF	Lockheed Martin : Dayton, OH	-	0.000		0.000		0.879	Feb 2017	0.000		0.879	Continuing	Continuing	-
LALI LIMS-EV Systems Engineering Contractor Support (Product Development) Vehicle View 6.0	C/CPFF	Lockheed Martin : Dayton, OH	-	0.000		0.000		0.879	Feb 2017	0.000		0.879	Continuing	Continuing	-
LALI LIMS-EV Systems Engineering Contractor	C/CPFF	Lockheed Martin : Dayton, OH	-	0.000		0.000		1.666	Feb 2017	0.000		1.666	Continuing	Continuing	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0708611F / <i>Support Systems Development</i>	Project (Number/Name) 675042 / <i>Log Application Logistics Integration (LALI)</i>
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Support (Product Development) Enterprise Propulsion BI Tool															
Autonomic Logistic Information System (ALIS)	C/FFP	Lockheed Martin : Dayton, OH	-	4.422		0.000		0.000		0.000		0.000	Continuing	Continuing	-
Subtotal			-	12.697		9.807		9.128		0.000		9.128	-	-	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Management Administration (PMA) LALI Program Management Office (PMO) Support	C/CPFF	DSD/Deloitte : Arlington, VA	-	2.000	Mar 2015	2.300	Mar 2016	0.000		0.000		0.000	Continuing	Continuing	-
Subtotal			-	2.000		2.300		0.000		0.000		0.000	-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force								Date: February 2016			
Appropriation/Budget Activity 3600 / 7			R-1 Program Element (Number/Name) PE 0708611F / <i>Support Systems Development</i>				Project (Number/Name) 675042 / <i>Log Application Logisitics Integration (LALI)</i>				
	Prior Years	FY 2015	FY 2016		FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract	
Project Cost Totals	-	14.697	12.107		9.128	0.000	9.128	-	-	-	

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0708611F / <i>Support Systems Development</i>	Project (Number/Name) 675042 / <i>Log Application Logistics Integration (LALI)</i>

	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
LIMS-EV Vehicle View 5.2																												
LIMS-EV Equipment View 4.6																												
LIMS-EV Repair Network View 4.0																												
LIMS-EV Enterprise Mobile Viewer 1.0																												
LIMS-EV Weapon System Enterprise Review																												
LIMS-EV Engine Health Management and Data Repository Center																												
LIMS-EV Enterprise Mobile Viewer 1.1																												
LIMS-EV Repair Network View 5.0																												
LIMS-EV Supply Chain Management View 7.0																												
LIMS-EV Support Equipment Enterprise View																												
LIMS-EV Cost of Logistics 2.0																												
LIMS-EV Vehicle View 6.0																												
LIMS-EV Enterprise Propulsion Business Intelligence Tool																												
LIMS-EV 2.0 MS C (Jun 2018)																												
LIMS-EV 2.0 FOC (Oct 2018)																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0708611F / <i>Support Systems Development</i>	Project (Number/Name) 675042 / <i>Log Application Logistics Integration (LALI)</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
LIMS-EV Vehicle View 5.2	3	2015	2	2016
LIMS-EV Equipment View 4.6	3	2015	2	2016
LIMS-EV Repair Network View 4.0	3	2016	2	2017
LIMS-EV Enterprise Mobile Viewer 1.0	3	2016	2	2017
LIMS-EV Weapon System Enterprise Review	3	2016	2	2017
LIMS-EV Engine Health Management and Data Repository Center	3	2017	2	2018
LIMS-EV Enterprise Mobile Viewer 1.1	3	2017	4	2017
LIMS-EV Repair Network View 5.0	3	2017	2	2018
LIMS-EV Supply Chain Management View 7.0	3	2017	2	2018
LIMS-EV Support Equipment Enterprise View	3	2017	4	2018
LIMS-EV Cost of Logistics 2.0	3	2017	2	2018
LIMS-EV Vehicle View 6.0	3	2017	2	2018
LIMS-EV Enterprise Propulsion Business Intelligence Tool	3	2017	2	2018
LIMS-EV 2.0 MS C (Jun 2018)	4	2018	4	2018
LIMS-EV 2.0 FOC (Oct 2018)	1	2019	1	2019

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0804743F / <i>Other Flight Training</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	-	0.987	1.836	1.653	0.000	1.653	2.068	2.036	2.072	2.109	Continuing	Continuing
675304: <i>Aviation Resource Management System (ARMS)</i>	-	0.987	1.836	1.653	0.000	1.653	2.068	2.036	2.072	2.109	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Aviation Resource Management System (ARMS) is the authoritative data source for recording and managing aircrew training information, aircrew/parachutist management, flying hour tracking, flight pay management, and flying gate tracking for 70,000 Air Force members. The Air Force uses this information to enhance safety-of-flight operations and to determine eligibility to perform aviation related events. New development work is required to provide additional flying operations information, which will aid in better portraying Air Force readiness, and to feed this data into Defense Readiness Reporting System Strategic (DRRS-S). These enhanced capabilities, to be developed incrementally, include the following: electronic flight record, enhanced flying hour management/execution, simulator and remotely piloted aircraft (RPA) management/utilization, full career logbook, training look-back, aircrew member man-month allocation, enhanced resource and jump module management, and interface with DRRS-S. ARMS data will also be used to support Headquarters Air Force/Major Command (HAF/MAJCOM) level readiness decision reports/analytics. New development work in support of ARMS needs to be accomplished with RDT&E versus O&M funds.

This program is Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

The FY2017 funding request was reduced by 0.387 Million to account for the availability of prior year execution balances.

B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	0.987	1.836	2.040	0.000	2.040
Current President's Budget	0.987	1.836	1.653	0.000	1.653
Total Adjustments	0.000	0.000	-0.387	0.000	-0.387
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	-0.387	0.000	-0.387

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force Date: February 2016

Appropriation/Budget Activity
3600: *Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development*

R-1 Program Element (Number/Name)
PE 0804743F / *Other Flight Training*

Change Summary Explanation

The FY2017 funding request was reduced by 0.387 Million to account for the availability of prior year execution balances

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force										Date: February 2016		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0804743F / Other Flight Training				Project (Number/Name) 675304 / Aviation Resource Management System (ARMS)			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
675304: Aviation Resource Management System (ARMS)	-	0.987	1.836	1.653	0.000	1.653	2.068	2.036	2.072	2.109	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Aviation Resource Management System (ARMS) is the authoritative data source for recording and managing aircrew training information, aircrew/parachutist management, flying hour tracking, flight pay management, and flying gate tracking for 70,000 Air Force members. The Air Force uses this information to enhance safety-of-flight operations and to determine eligibility to perform aviation related events. ARMS interfaces with the Military Personnel Data System (MilPDS) and multiple operations and flight scheduling systems such as Patriot Excalibur (PEX), Graduate Training Integration Management System (GTIMS), Center Operations On-Line (COOL), Global Decision Support System (GDSS), and Automated Aircrew Management System (AAMS) and is used to determine whom to select for flying operations, assignment actions, and promotion of aircrew members.

New development work is required to provide additional flying operations information, which will aid in better portraying Air Force readiness, and to feed this data into Defense Readiness Reporting System Strategic (DRRS-S). These enhanced capabilities, to be developed incrementally, include the following: electronic flight record, enhanced flying hour management/execution, simulator and RPA management/utilization, full career logbook, training look-back, aircrew member man-month allocation, enhanced resource and jump module management, and interface with DRRS-S. Additional development work on the existing ARMS, such as database flattening and Business Process Reengineering (BPR) actions, is required prior to incorporating these enhanced capabilities.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Aviation Resource Management System (ARMS)	0.987	1.836	1.653	0.000	1.653
Description: Hardware/software development to update ARMS, adding functionality and system interfaces.					
FY 2015 Accomplishments:					
- Continued hardware/software development efforts in support of ARMS.					
- Completed milestone documentation for MDD scheduled 1st Qtr FY15.					
FY 2016 Plans:					
- Continue hardware/software development efforts in support of ARMS.					
- Release RFP for ARMS 7.0 Development contract					
- Award ARMS 7.0 Design Contract					
- Financial Improvement Audit Compliance Contract.					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0804743F / <i>Other Flight Training</i>	Project (Number/Name) 675304 / <i>Aviation Resource Management System (ARMS)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
- Begin Development of Increment 1 Build 1 (Flying Hours and Flight). FY 2017 Base Plans: - Continue hardware/software development efforts in support of ARMS - Complete Development of Increment 1 Build 1 (Flying Hours and Crew Training). - Begin Development Increment 1 Build 2 (Simulator Utilization and Training) FY 2017 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	0.987	1.836	1.653	0.000	1.653

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• O&M: BA03: PE 0804743F: <i>Other Flight Training</i>	1.057	1.388	1.260	0.000	1.260	1.376	1.401	2.280	2.322	Continuing	Continuing

Remarks

D. Acquisition Strategy
ARMS will incrementally develop enhancements to the existing system. The acquisition will be accomplished with Firm Fixed Price (FFP) contracts awarded under Section 8(a) as small business set aside.

E. Performance Metrics
Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0804743F / Other Flight Training	Project (Number/Name) 675304 / Aviation Resource Management System (ARMS)
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
ARMS Requirements and Document Development	C/FFP	AFLCMC/HIB : Maxwell AFB-Gunter Annex, AL	-	0.920	Jan 2015	0.000		0.000		0.000		0.000	0.000	0.920	0.920
ARMS Financial Improvement Audit Readiness (FIAR) contract	SS/FFP	AFLCMC/HIB : Maxwell AFB-Gunter Annex, AL	-	0.000		1.200	Feb 2016	0.000		0.000		0.000	0.000	1.200	1.200
ARMS Increment 1, Build 1 and Build 2 contract	SS/FFP	Enterprise Solution Architects : Maxwell AFB-Gunter Annex	-	0.000		0.636	Mar 2016	1.490	Mar 2017	0.000		1.490	Continuing	Continuing	3.400
Subtotal			-	0.920		1.836		1.490		0.000		1.490	-	-	5.520

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
ARMS A&AS Support	C/CPAF	AFLCMC/HIB : Maxwell AFB, AL	-	0.067	Jan 2015	0.000		0.163	Jan 2017	0.000		0.163	Continuing	Continuing	-
Subtotal			-	0.067		0.000		0.163		0.000		0.163	-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force								Date: February 2016				
Appropriation/Budget Activity 3600 / 7				R-1 Program Element (Number/Name) PE 0804743F / <i>Other Flight Training</i>				Project (Number/Name) 675304 / <i>Aviation Resource Management System (ARMS)</i>				
	Prior Years	FY 2015	FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	0.987	1.836		1.653		0.000		1.653	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0804743F / <i>Other Flight Training</i>	Project (Number/Name) 675304 / <i>Aviation Resource Management System (ARMS)</i>

	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
New Functional Requirements	████████																											
Acquisition/Clinger Cohen Act Docs	████████																											
System Software Requirements	████████																											
Architectural Documents (Certification and Accreditation)	████████████████																											
Advisory and Assistance Services Contract	████████████████																											
MDD					████																							
RFP					████																							
MS B					████																							
ARMS Financial Improvement Audit Readiness contract					████████████████																							
ARMS 7.0 Increment 1 Build 1 Contract					████████████████																							
ARMS 7.0 Increment 1 Build 2 Contract									████████████████																			
ARMS 7.0 Increment 2 Build 1 Contract													████████████████															
ARMS 7.0 Increment 2 Build 2 Contract																	████████████████											
ARMS 7.0 Increment 2 Build 3 Contract																					████████████████							

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0804743F / <i>Other Flight Training</i>	Project (Number/Name) 675304 / <i>Aviation Resource Management System (ARMS)</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
New Functional Requirements	1	2015	3	2015
Acquisition/Clinger Cohen Act Docs	1	2015	3	2015
System Software Requirements	1	2015	3	2015
Architectural Documents (Certification and Accreditation)	1	2015	1	2016
Advisory and Assistance Services Contract	1	2015	1	2016
MDD	1	2016	1	2016
RFP	2	2016	2	2016
MS B	2	2016	2	2016
ARMS Financial Improvement Audit Readiness contract	2	2016	2	2017
ARMS 7.0 Increment 1 Build 1 Contract	2	2016	2	2017
ARMS 7.0 Increment 1 Build 2 Contract	2	2017	2	2018
ARMS 7.0 Increment 2 Build 1 Contract	2	2018	2	2019
ARMS 7.0 Increment 2 Build 2 Contract	2	2019	2	2020
ARMS 7.0 Increment 2 Build 3 Contract	2	2020	2	2021

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0808716F / <i>Other Personnel Activities</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	-	0.126	0.121	0.057	0.000	0.057	0.107	0.109	0.111	0.113	0.000	0.744
675141: <i>DEOMI Faculty Research</i>	-	0.126	0.121	0.057	0.000	0.057	0.107	0.109	0.111	0.113	0.000	0.744
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

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 and engineering analysis. The research methodology and analysis 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.

This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

B. Program Change Summary (\$ in Millions)	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>
Previous President's Budget	0.126	0.121	0.106	0.000	0.106
Current President's Budget	0.126	0.121	0.057	0.000	0.057
Total Adjustments	0.000	0.000	-0.049	0.000	-0.049
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	-0.049	0.000	-0.049

C. Accomplishments/Planned Programs (\$ in Millions)

	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u>
Title: Equal Opportunity Issues	0.126	0.121	0.057
Description: Conduct research on military and civilian equal opportunity issues.			
FY 2015 Accomplishments:			

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0808716F / <i>Other Personnel Activities</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
Continue conducting research on military and civilian equal opportunity issues.			
<i>FY 2016 Plans:</i> Continue conducting research on military and civilian equal opportunity issues.			
<i>FY 2017 Plans:</i> Continue conducting research on military and civilian equal opportunity issues.			
Accomplishments/Planned Programs Subtotals	0.126	0.121	0.057

D. Other Program Funding Summary (\$ in Millions)

N/A

Remarks

E. Acquisition Strategy

Grants will be awarded competitively.

F. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0808716F / <i>Other Personnel Activities</i>	Project (Number/Name) 675141 / <i>DEOMI Faculty Research</i>
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
DEOMI	TBD	Various : Various	-	0.126	Mar 2015	0.121	Mar 2016	0.057	Mar 2017	0.000		0.057	Continuing	Continuing	TBD
Subtotal			-	0.126		0.121		0.057		0.000		0.057	-	-	-

Remarks
Contract method will be a grant

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

			Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	0.126	0.121	0.057	0.000	0.057	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0808716F / <i>Other Personnel Activities</i>	Project (Number/Name) 675141 / <i>DEOMI Faculty Research</i>
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	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

Receive Grants																												
Award Grants																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0808716F / <i>Other Personnel Activities</i>	Project (Number/Name) 675141 / <i>DEOMI Faculty Research</i>
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Receive Grants	1	2015	2	2021
Award Grants	3	2015	4	2021

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force										Date: February 2016		
Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>					R-1 Program Element (Number/Name) PE 0901202F <i>Joint Personnel Recovery Agency</i>							
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	-	2.523	5.911	3.663	0.000	3.663	2.000	2.037	2.074	2.111	Continuing	Continuing
675196: <i>Joint Technology Exploitation</i>	-	2.523	5.911	3.663	0.000	3.663	2.000	2.037	2.074	2.111	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The FY17 funding request was reduced by \$.269M to account for the availability of prior year execution balances.

Funding supports Personnel Recovery development efforts to upgrade Isolated Personnel reporting devices & locating systems in support of Combatant Commanders and Services. Joint Personnel Recovery Agency (JPRA) developmental efforts address Personnel Recovery capability shortfalls & gaps identified in the Personnel Recovery Initial Capabilities Document approved by Joint Requirements Oversight Council Memorandum 120-12 on 8 Aug 2012. Activities include funding for research and development, support equipment, contract services and all associated costs specifically identified to support the JPRA headquarters at Ft. Belvoir, VA and other JPRA operating locations.

In FY16, the Common Distress Reporting System (CDRS) began development. CDRS will integrate all personnel locating devices into the existing reporting device architecture & Combat Survivor Evader Locater base stations to provide one common operating picture for timely and efficient recovery operations of isolated personnel.

This program is in Budget Activity 7, Operational System Development because this budget activity includes efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent year.

B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	2.603	5.911	3.948	0.000	3.948
Current President's Budget	2.523	5.911	3.663	0.000	3.663
Total Adjustments	-0.080	0.000	-0.285	0.000	-0.285
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	-0.080	0.000	-0.285	0.000	-0.285

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force		Date: February 2016		
Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>		R-1 Program Element (Number/Name) PE 0901202F <i>I Joint Personnel Recovery Agency</i>		
C. Accomplishments/Planned Programs (\$ in Millions)		FY 2015	FY 2016	FY 2017
<p>Title: Common Distress Reporting System</p> <p>Description: Develop/implement the Common Distress Reporting System</p> <p>FY 2016 Plans: - Beginning of the Common Distress Reporting System (CDRS)development. CDRS will integrate all personnel locating devices into the existing reporting device architecture & Combat Survivor Evader Locator base stations to provide one common operating picture for timely and efficient recovery operations of isolated personnel.</p> <p>FY 2017 Plans: - Continue the Common Distress Reporting System (CDRS)development. CDRS will integrate all personnel locating devices into the existing reporting device architecture & Combat Survivor Evader Locator base stations to provide one common operating picture for timely and efficient recovery operations of isolated personnel.</p>		-	3.930	1.948
<p>Title: Optimal Search Study</p> <p>Description: Assess and evaluate technologies for personnel recovery geospatial data visualization, predictive and real-time planning capabilities</p> <p>FY 2015 Accomplishments: - Continued assessment and evaluation of real-time search planning capability and modeling and simulation to assess operational personnel recovery plans.</p> <p>FY 2016 Plans: - Finalize the assessment and evaluation of real-time search planning capability and modeling and simulation to assess operational personnel recovery plans.</p>		0.687	0.165	-
<p>Title: Collaborative Personnel Recovery planning systems & PR Capabilities Development</p> <p>Description: - Assess and evaluate technologies for personnel recovery real-time collaborative planning capabilities to include cyber support to personnel recovery, standardization and interoperability of joint personnel recovery mission management and planning systems, and standardization of human and machine-to-machine information exchanges, communications, and data transfer to facilitate mission planning for personnel recovery</p> <p>FY 2015 Accomplishments: - Assessed and evaluated technologies for personnel recovery real-time collaborative planning capabilities to include cyber support to personnel</p>		1.836	1.816	1.715

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force		Date: February 2016		
Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>		R-1 Program Element (Number/Name) PE 0901202F <i>Joint Personnel Recovery Agency</i>		
C. Accomplishments/Planned Programs (\$ in Millions)		FY 2015	FY 2016	FY 2017
recovery, standardization and interoperability of joint personnel recovery mission management and planning systems, and standardization of human and machine-to-machine information exchanges, communications, and data transfer to facilitate mission planning for personnel recovery FY 2016 Plans: - Continue to assess and evaluate technologies for personnel recovery real-time collaborative planning capabilities to include cyber support to personnel recovery, standardization and interoperability of joint personnel recovery mission management and planning systems, and standardization of human and machine-to-machine information exchanges, communications, and data transfer to facilitate mission planning for personnel recovery FY 2017 Plans: - Continue to assess and evaluate technologies for personnel recovery real-time collaborative planning capabilities to include cyber support to personnel recovery, standardization and interoperability of joint personnel recovery mission management and planning systems, and standardization of human and machine-to-machine information exchanges, communications, and data transfer to facilitate mission planning for personnel recovery				
Accomplishments/Planned Programs Subtotals		2.523	5.911	3.663
D. Other Program Funding Summary (\$ in Millions) N/A				
Remarks				
E. Acquisition Strategy Projects will leverage existing program contracts. In the rare instance where a contract does not already exist, contracts will be awarded through full and open competition.				
F. Performance Metrics Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.				

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0901202F / Joint Personnel Recovery Agency	Project (Number/Name) 675196 / Joint Technology Exploitation
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Common Distress Reporting System	SS/TBD	AFLCMC/HBZ : Huntington Beach, CA	-	0.000		3.930	Feb 2016	1.948		0.000		1.948	Continuing	Continuing	-
Optimal Search Study	Various	Various : TBD	-	0.687	Aug 2015	0.165		0.000		0.000		0.000	Continuing	Continuing	-
Collaborative Personnel Recovery Planning Systems & PR Capabilities Development	Various	Various : TBD	-	1.836	Aug 2015	1.816	Mar 2016	1.715		0.000		1.715	Continuing	Continuing	-
Personnel Recovery Modeling and simulation development	Various	Various : TBD	-	0.000		0.000		0.000		0.000		0.000	Continuing	Continuing	-
Subtotal			-	2.523		5.911		3.663		0.000		3.663	-	-	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force								Date: February 2016			
Appropriation/Budget Activity 3600 / 7			R-1 Program Element (Number/Name) PE 0901202F / Joint Personnel Recovery Agency				Project (Number/Name) 675196 / Joint Technology Exploitation				
	Prior Years	FY 2015	FY 2016		FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract	
Project Cost Totals	-	2.523	5.911		3.663	0.000	3.663	-	-	-	

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0901202F / <i>Joint Personnel Recovery Agency</i>	Project (Number/Name) 675196 / <i>Joint Technology Exploitation</i>

FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

Common Distress Reporting System	
Optimal Search Study	
Collaborative Personnel Recovery planning systems	

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0901202F / <i>Joint Personnel Recovery Agency</i>	Project (Number/Name) 675196 / <i>Joint Technology Exploitation</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Common Distress Reporting System	2	2016	4	2021
Optimal Search Study	1	2015	4	2016
Collaborative Personnel Recovery planning systems	1	2015	4	2021

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development	R-1 Program Element (Number/Name) PE 0901218F I Civilian Compensation Program
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	-	2.418	3.604	3.735	0.000	3.735	3.769	3.800	3.836	3.905	Continuing	Continuing
674139: Civilian Compensation Program	-	2.418	3.604	3.735	0.000	3.735	3.769	3.800	3.836	3.905	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

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.

This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

B. Program Change Summary (\$ in Millions)

	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>
Previous President's Budget	1.589	3.604	3.628	0.000	3.628
Current President's Budget	2.418	3.604	3.735	0.000	3.735
Total Adjustments	0.829	0.000	0.107	0.000	0.107
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.829	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	0.107	0.000	0.107

C. Accomplishments/Planned Programs (\$ in Millions)

	FY 2015	FY 2016	FY 2017
Title: Civilian Compensation	2.418	3.604	3.735
Description: Program compensates employees assigned to RDT&E facilities for work-related injury or disease.			

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0901218F / <i>Civilian Compensation Program</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
<p><i>FY 2015 Accomplishments:</i> Continue a program to compensate employees assigned to RDT&E facilities for work-related injury or disease.</p> <p><i>FY 2016 Plans:</i> Continue a program to compensate employees assigned to RDT&E facilities for work-related injury or disease.</p> <p><i>FY 2017 Plans:</i> Continue a program to compensate employees assigned to RDT&E facilities for work-related injury or disease.</p>			
Accomplishments/Planned Programs Subtotals	2.418	3.604	3.735

D. Other Program Funding Summary (\$ in Millions)

N/A

Remarks

E. Acquisition Strategy

Not Applicable.

F. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force												Date: February 2016				
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)								
3600 / 7				PE 0901218F / Civilian Compensation Program				674139 / Civilian Compensation Program								
Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Continue development of compensation plan	RO	AF/A1 : Pentagon, DC	-	2.418	Apr 2015	3.604	Apr 2016	3.735	Apr 2017	0.000		3.735	Continuing	Continuing	3.773	
Subtotal			-	2.418		3.604		3.735		0.000		3.735	-	-	3.773	
Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Subtotal			-	-		-		-		-		-	-	-	-	
Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Subtotal			-	-		-		-		-		-	-	-	-	
Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Subtotal			-	-		-		-		-		-	-	-	-	
Project Cost Totals			-	2.418		3.604		3.735		0.000		3.735	-	-	3.773	
Remarks																

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0901218F / <i>Civilian Compensation Program</i>	Project (Number/Name) 674139 / <i>Civilian Compensation Program</i>

FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

Compensation program

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0901218F / <i>Civilian Compensation Program</i>	Project (Number/Name) 674139 / <i>Civilian Compensation Program</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Compensation program	1	2015	4	2021

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0901220F / <i>Personnel Administration</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	-	6.381	4.598	5.157	0.000	5.157	6.450	6.403	6.522	6.638	Continuing	Continuing
675194: <i>Force Development Transformation</i>	-	6.381	4.598	5.157	0.000	5.157	6.450	6.403	6.522	6.638	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Defense Forensic Material Exchange (DFME), is a new start in FY15.

A. Mission Description and Budget Item Justification

Personnel Services Delivery (PSD), under the Personnel Administration program, funds operational developments necessary to acquire, field, and modify business processes to transform the delivery of Human Resources (HR) capabilities through the structured redesign of the Total Force Personnel Community's people (Active Duty, Reserve, Guard, and Civilians), processes, and technologies. PSD Transformation fundamentally shifts the way personnel services are provided, transitioning from primarily face-to-face interactions with a personnelist to a tiered model with services delivered through online self-service, contact centers, and fewer in-person interactions. PSD supports the migration of legacy applications and other information technologies to a more sustainable and flexible, services-based architecture. PSD also supports transition from the legacy Military Personnel Data System (MilPDS) to the Air Force Integrated Personnel and Pay System (AFIPPS) to improve financial auditability and track military personnel data. To this end, PSD executes the development of several legacy personnel systems through the deployment and transitioning of applications to Department of Defense (DoD) and commercial cloud services as part of the Federal Data Center Consolidation effort, as well as future HR application requirements which are beyond the scope of AFIPPS.

The FY17 funding request was reduced by \$1.328 million to account for the availability of prior year execution balances.

This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0901220F / <i>Personnel Administration</i>
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B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	5.026	4.598	6.537	0.000	6.537
Current President's Budget	6.381	4.598	5.157	0.000	5.157
Total Adjustments	1.355	0.000	-1.380	0.000	-1.380
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	1.500	0.000			
• SBIR/STTR Transfer	-0.145	0.000			
• Other Adjustments	0.000	0.000	-1.380	0.000	-1.380

Change Summary Explanation

FY15 increase \$1.5M for DFME.

The FY17 funding request was reduced by \$1.328 million to account for the availability of prior year execution balances.

FY17 reduction for inflation, -\$0.052M.

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
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Title: AF/A1 Service Oriented Architecture (SOA) - Data Sharing Services	0.507	1.043	1.063
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Description: Develop reusable business and data sharing SOA services on an established architecture. These services provide authoritative personnel data and business logic to myriad of enterprise processes and systems.

FY 2015 Accomplishments:

- Completed Development and Component Validation and Integration of SOA Increment 1
- Completed Quality Test and Evaluation (QT&E) of SOA Increment 1

FY 2016 Plans:

- Delivering SOA Increment 1 (926 military data elements)
- Continuing to develop reusable business and data sharing Service Oriented Architecture (SOA) services
- Developing SOA Increment 2 additional data elements based on consumer requirements

FY 2017 Plans:

- Will deliver SOA Increment 2 (additional military data elements)
- Will continue to develop reusable business and data sharing SOA services

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force		Date: February 2016		
Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>		R-1 Program Element (Number/Name) PE 0901220F / <i>Personnel Administration</i>		
C. Accomplishments/Planned Programs (\$ in Millions)		FY 2015	FY 2016	FY 2017
• Will develop Increment 3 additional data elements based on consumer requirements				
<p>Title: Human Resource Applications</p> <p>Description: Develop AF Human Resource Applications to automate processes and create self-service capabilities to the warfighter. Continue to incrementally develop the electronic Board Operations System (eBOSS) capability that provides a collaborative viewing, scoring, vectoring, & feedback system for board administrators and members, enabling both Force Dev & Force Mgmt competencies for Active Duty, Air National Guard & Air Force Reserve Airmen (Military & Civilian). The increment currently under development (Release V1.09) provides the Executive Records Viewer (ERV) capability, gives the customer Role Based Access for all eBOSS events, and upgrades the platform from a WebSphere Process Server to a WebSphere Application Server.</p> <p>FY 2015 Accomplishments:</p> <ul style="list-style-type: none"> • Completed the development and component validation and integration of eBOSS ERV release v1.09 • Completed final Quality Test and Evaluation of eBOSS release v1.09 • Completed final User Evaluation/Acceptance Testing of eBOSS release v1.09 • Migrated eBOSS release v1.09 to Production in October 2015 • Continued the development of eBOSS to support Force Development and Vectoring <p>FY 2016 Plans:</p> <ul style="list-style-type: none"> • Migrating eBOSS release 1.12 (Force Development and Vectoring) to production in Feb 2016 • Developing the eBOSS MyVector interface capability • Quality Testing and Evaluating eBOSS MyVector interface capability • User Evaluation/Acceptance Testing of the eBOSS MyVector interface capability • Migrating eBOSS MyVector interface capability to production in Sep 2016 <p>FY 2017 Plans: N/A</p>		0.668	1.061	0.000
<p>Title: Human Resource Systems (HRS) Transition</p> <p>Description: Transition from the legacy MilPDS to future HR applications to improve financial auditability and track military personnel data. Provide legacy personnel systems transition and data translation to the AFIPPS Enterprise Resource Planning (ERP) program. Transition applications to DoD and commercial cloud services as part of the Federal Data Center Consolidation effort, as well as future HR application requirements which are beyond the scope of AFIPPS.</p> <p>FY 2015 Accomplishments:</p>		2.227	1.054	2.624

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force		Date: February 2016		
Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>		R-1 Program Element (Number/Name) PE 0901220F / <i>Personnel Administration</i>		
C. Accomplishments/Planned Programs (\$ in Millions)		FY 2015	FY 2016	FY 2017
<p>Awarded contracts to provide AF/A1 & SAF/US(M) with Course of Action for use of MilPDS & E-Business Suite (EBS) as AFIPPS solution:</p> <ul style="list-style-type: none"> • Focused analysis of legacy applications to document complexities associated with design and customization & identify opportunities to improve sustainability • Identified necessary Oracle pay modules in EBS to support AF personnel and pay functions • Outlined/formulated the gaps between AFIPPS functional requirements against current Oracle R12 ERP (MilPDS)(EBS Fit Gap) <p>FY 2016 Plans: Developing acquisition and executing transition/decommissioning strategy identified in FY2015 Plan</p> <ul style="list-style-type: none"> • Investing in simplifying the web-apps for AFIPPS transition -- Identifying opportunities to consolidate apps by life cycle requirements and functionality -- Migrating apps to supportable software platforms • Investing in Test and Development Environment migration -- Separating TD&E capability from production networks per guidance from the Security Technical Implementation Guide -- Planning for migration of TD&E capability to an approved Cloud Service Provider • Identifying opportunities to use inherent capabilities with COTS (Oracle EBS HR) to accomplish functionality provided by current customized Oracle code (MilPDS) • Developing data management strategy for MilPDS/AFIPPS transition <p>FY 2017 Plans:</p> <ul style="list-style-type: none"> • Will continue to develop data management strategy for MilPDS/AFIPPS transition • Will continue web application investment to position for subsumption by MilPDS/AFIPPS • Will identify opportunities to leverage current technologies to reduce redundant capabilities • Will migrate TD&E capability to an approved Cloud Service Provider 				
<p>Title: Test and Evaluation/Systems Engineering</p> <p>Description: Continued support for all aspects of engineering including software and systems engineering, requirements analysis, configuration management, database administration, and test and evaluation throughout the lifecycle of all Human Resources applications and continued infrastructure development.</p> <p>FY 2015 Accomplishments:</p> <ul style="list-style-type: none"> • Continued supporting all aspects of engineering including software and systems engineering, requirements analysis, configuration management, and database administration • Performed test and evaluation for eBOSS, SOA, and provided system engineering support for the HRS Transition <p>FY 2016 Plans:</p>		1.479	1.440	1.470

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0901220F / <i>Personnel Administration</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
<ul style="list-style-type: none"> • Continuing supporting all aspects of engineering including software and systems engineering, requirements analysis, configuration management, and database administration • Performing test and evaluation for eBOSS, SOA, and provide system engineering support for the HRS transition <p>FY 2017 Plans:</p> <ul style="list-style-type: none"> • Will continue supporting all aspects of engineering including software and systems engineering, requirements analysis, configuration management, and database administration • Will perform test and evaluation for SOA and HRS transition 			
<p>Title: DFME</p> <p>Description: This program provides a plan for a common solution to manage forensic material/evidence in a common database structure and track transactions within and between DOD investigative agencies and DOD Forensic Laboratories. The Joint Requirements Oversight Council validated the need to improve sharing of forensics information and material. The objective is to reduce special victims wait time for investigations thereby reducing risk of repeat offenses by sexual assault perpetrators.</p> <p>FY 2015 Accomplishments:</p> <ul style="list-style-type: none"> • Awarded software upgrade contract. • Solidified joint support and developed acquisition strategy. 	1.500	-	-
Accomplishments/Planned Programs Subtotals	6.381	4.598	5.157

D. Other Program Funding Summary (\$ in Millions)
N/A

Remarks

E. Acquisition Strategy
PSD employs an evolutionary acquisition strategy to deliver incremental Information Technology, and Human Resources capabilities with development contracts that are awarded in a competitive environment. In 2015, the government conducted a Full and Open competition for Human Resources System Technical Support and awarded a contract to provide PSD with development and test/technical support.

F. Performance Metrics
Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0901220F / <i>Personnel Administration</i>	Project (Number/Name) 675194 / <i>Force Development Transformation</i>
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Electronic Board Operations Support System Dev	SS/FFP	Diligent Consulting Inc : San Antonio, TX	-	0.450	Apr 2015	0.832	Feb 2016	0.000		0.000		0.000	Continuing	Continuing	-
Service Oriented Architecture	C/FFP	Deloitte Consulting LLP : Alexandria, VA	-	0.305	Jul 2015	0.691	Jan 2016	0.704	Nov 2016	0.000		0.704	Continuing	Continuing	-
Human Resource Systems (HRS) Transition Phase 1	TBD	TBD : TBD	-	0.000		0.506	Jun 2016	0.000		0.000		0.000	Continuing	Continuing	-
HRS Transition Phase 2	TBD	TBD : TBD	-	0.000		0.000		2.156	Jun 2017	0.000		2.156	Continuing	Continuing	-
Defense Forensic Material Exchange (DFME)	C/FFP	AT Solutions : Fredericksburg, VA	-	1.500	Sep 2015	0.000		0.000		0.000		0.000	Continuing	Continuing	-
Subtotal			-	2.255		2.029		2.860		0.000		2.860	-	-	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Engineering/Technical Support	C/CPFF	Jacobs Technology : Lincoln, MA	-	0.849	May 2015	1.167	Jan 2016	0.832	Jan 2017	0.000		0.832	Continuing	Continuing	-
Enterprise Resource Planning/Technical Analysis Support	SS/FFP	Science Application International Corporation : Mclean, VA	-	1.718	Jun 2015	0.000		0.000		0.000		0.000	Continuing	Continuing	-
Subtotal			-	2.567		1.167		0.832		0.000		0.832	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Hardware/Software Licensing Dev Support	Various	Various : Various	-	0.006	Aug 2015	0.024	Aug 2016	0.024	Jul 2017	0.000		0.024	Continuing	Continuing	-
Test and Evaluation Support	MIPR	GSA : Atlanta, GA	-	0.081	Apr 2015	0.040	Apr 2016	0.040	Apr 2017	0.000		0.040	Continuing	Continuing	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0901220F / <i>Personnel Administration</i>	Project (Number/Name) 675194 / <i>Force Development Transformation</i>
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Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Test & Evaluation Support	C/T&M	Lockheed Martin : Gaithersburg, MD	-	0.543	Mar 2015	0.000		0.000		0.000		0.000	Continuing	Continuing	-
Test/Evaluation Support	C/CPIF	Diversified Technical Services, Inc. : San Antonio, TX	-	0.000		0.209	Feb 2016	0.574	Nov 2016	0.000		0.574	Continuing	Continuing	-
Subtotal			-	0.630		0.273		0.638		0.000		0.638	-	-	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Management Office Support	Various	Various : Various	-	0.929	Apr 2015	1.129	Oct 2015	0.827	Oct 2016	0.000		0.827	Continuing	Continuing	-
Subtotal			-	0.929		1.129		0.827		0.000		0.827	-	-	-

			Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	6.381	4.598	5.157	0.000	5.157	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0901220F / <i>Personnel Administration</i>	Project (Number/Name) 675194 / <i>Force Development Transformation</i>

	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
SOA Inc 1 Development/Fielding	██████████																											
SOA Inc 2 Development/Fielding					██████████																							
SOA Inc 3 Development/Fielding									██████████																			
eBOSS Increment 3 Development/Fielding	██████████																											
HRS Transition Analysis	██████████																											
HRS Transition Phase 1 Contract Award/ Development/Testing/Fielding					██████████																							
HRS Transition Phase 2 Contract Award/ Development/Testing/Fielding									██████████																			
HRS Transition Phase 3 Contract Award/ Development/Testing/Fielding													██████████															
HRS Transition Phase 4 Contract Award/ Development/Testing/Fielding																	██████████											
Defense Forensic Material Exchange (DFME)	██████████																											

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0901220F / <i>Personnel Administration</i>	Project (Number/Name) 675194 / <i>Force Development Transformation</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
SOA Inc 1 Development/Fielding	1	2015	2	2016
SOA Inc 2 Development/Fielding	2	2016	1	2017
SOA Inc 3 Development/Fielding	1	2017	1	2018
eBOSS Increment 3 Development/Fielding	1	2015	4	2016
HRS Transition Analysis	2	2015	2	2016
HRS Transition Phase 1 Contract Award/Development/Testing/Fielding	3	2016	4	2017
HRS Transition Phase 2 Contract Award/Development/Testing/Fielding	3	2017	4	2018
HRS Transition Phase 3 Contract Award/Development/Testing/Fielding	3	2018	4	2019
HRS Transition Phase 4 Contract Award/Development/Testing/Fielding	3	2019	4	2021
Defense Forensic Material Exchange (DFME)	1	2015	4	2015

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0901226F / <i>Air Force Studies and Analysis Agency</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	-	1.346	1.103	1.523	0.000	1.523	1.559	1.428	1.453	1.479	Continuing	Continuing
676009: <i>M & S DEVELOPMENT</i>	-	1.346	1.103	1.523	0.000	1.523	1.559	1.428	1.453	1.479	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The FY17 funding was reduced by \$.086M to account for the availability of prior year execution balances.

Provides for development and enhancement of modeling and simulation (M&S) tools for strategic planning, operational requirements, modernization and recapitalization of systems and programs, as well as the Planning, Programming, Budgeting and Execution (PPBE) processes for the AF Analytic Community and Secretary of the Air Force Standard Analysis Toolkit in support of AF Senior Leadership. As new technologies are introduced to the battlefield (Digital Electronic Jammers, maneuvering Surface-to-Surface Missiles, Directed Energy Weapons, etc.) along with evolving warfighting techniques and support operations, the range of capabilities that needs to be covered by analytic tools needs to expand as well. M&S creation and enhancement can require extensive research in how to properly implement the emerging weapons capabilities as well as demand development of software techniques to implement the changes. Additionally, emerging and continuing focus areas such as Space, Irregular Warfare, Information Operations, Cyber warfare and ISR demand specific tools of their own for new exploration and development. These focus areas require examination in isolation as well as cross-domain making the problem more complex and increasing the R&D challenges to field new decision support tools.

This program is in Budget Activity 7, Operational System Development as this budget activity includes development efforts to provide new and evolving systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

<u>B. Program Change Summary (\$ in Millions)</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>
Previous President's Budget	1.394	1.103	1.624	0.000	1.624
Current President's Budget	1.346	1.103	1.523	0.000	1.523
Total Adjustments	-0.048	0.000	-0.101	0.000	-0.101
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	-0.048	0.000	-0.101	0.000	-0.101

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0901226F / <i>Air Force Studies and Analysis Agency</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
<p>Title: Modeling and Simulation Development</p> <p>Description: Develop and Update Modeling & Simulation (M&S) tools.</p> <p>FY 2015 Accomplishments: Accomplished research and development of M&S tools.</p> <p>FY 2016 Plans: Will continue research and development of M&S Tools.</p> <p>FY 2017 Plans: Will continue research and development of M&S Tools.</p>	1.346	1.103	1.523
Accomplishments/Planned Programs Subtotals	1.346	1.103	1.523

D. Other Program Funding Summary (\$ in Millions)
N/A

Remarks
N/A.

E. Acquisition Strategy
Previous and planned future efforts have been/will be awarded under existing Task Order contracts. AF/A9 does not anticipate awarding a new contract for R&D work in the next year.

F. Performance Metrics
Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0901226F / Air Force Studies and Analysis Agency	Project (Number/Name) 676009 / M & S DEVELOPMENT
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Software Development	Various	Not specified. : TBD	-	1.346	Jan 2015	1.103	Jan 2016	1.523	Jan 2016	0.000		1.523	Continuing	Continuing	-
Subtotal			-	1.346		1.103		1.523		0.000		1.523	-	-	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

			Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	1.346	1.103	1.523	0.000	1.523	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0901226F / <i>Air Force Studies and Analysis Agency</i>	Project (Number/Name) 676009 / <i>M & S DEVELOPMENT</i>

FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

Modeling & Simulation Development

[Redacted]																											
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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0901226F / <i>Air Force Studies and Analysis Agency</i>	Project (Number/Name) 676009 / <i>M & S DEVELOPMENT</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Modeling & Simulation Development	1	2015	4	2021

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0901279F / <i>Facilities Operation - Administrative</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	-	3.666	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.666
671017: <i>CE IT Transformation</i>	-	3.666	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.666
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note
 In FY 2015, Project 671017, CE IT Transformation, was completed.

A. Mission Description and Budget Item Justification

NexGen IT is a key USAF effort to comply with statutory and regulatory policy and guidance associated with Financial Improvement and Audit Readiness (FIAR) efforts.

NexGen IT will transform Civil Engineering (CE) business processes to improve operations and support AF priorities. The plan is to leverage industry best practices, optimize core business processes, and replace existing outdated IT capabilities with a set of commercial off-the-shelf (COTS) software solutions and secure a service provider to deploy and maintain the system. This COTS solution will provide a robust, enterprise-wide CE capability that will consist of an integrated set of embedded / configurable best business practices and capabilities to support the following CE missions: Real Property Management (RPM), Work & Supply Management (WSM), Project Management (PM), and Energy Management (EnM). Capabilities are to be configured, tested, and deployed as Capability Groups.

This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	3.798	0.000	0.000	0.000	0.000
Current President's Budget	3.666	0.000	0.000	0.000	0.000
Total Adjustments	-0.132	0.000	0.000	0.000	0.000
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-0.132	0.000			
• Other Adjustments	0.000	0.000	0.000	0.000	0.000

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0901279F / <i>Facilities Operation - Administrative</i>
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Change Summary Explanation
 FY2015 SBIR/STTR Transfer of -\$0.132M.

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
<p>Title: NexGen IT</p> <p>Description: NexGen Information Technology (NexGen IT) will transform Civil Engineering (CE) business processes to improve operations and support AF priorities. The plan is to leverage industry best practices, optimize core business processes, and replace existing outdated IT capabilities with a set of commercial off-the-shelf (COTS) software solutions and secure a service provider to deploy and maintain the system. This COTS solution will provide a robust, enterprise-wide CE capability and will consist of an integrated set of embedded / configurable best business practices and capabilities to support the following CE missions: Real Property Management (RPM), Work & Supply Management (WSM), Project Management (PM), and Energy Management (EnM). Capabilities are to be developed, tested, and deployed as Capability Groups.</p> <p>FY 2015 Accomplishments:</p> <ul style="list-style-type: none"> - Completed Configuration Development and Testing. - Initiated deployment activities to priority Air Force installations, MAJCOMS, Headquarters Air Force, and Forward Operating Agencies. <p>FY 2016 Plans:</p> <ul style="list-style-type: none"> - Complete Milestone C review, Full Deployment Decision (FDD), and Initial Operational Capability (IOC) 1QFY2016 (October) <p>FY 2017 Plans:</p> <p>N/A</p>	3.666	0.000	0.000
Accomplishments/Planned Programs Subtotals	3.666	0.000	0.000

D. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• OPAF: BA03: Line Item # 834010: <i>General Information Technology</i>	0.500	0.000	0.000	0.000	0.000	0.753	0.000	0.000	0.000	Continuing	Continuing

Remarks

E. Acquisition Strategy
 A two step acquisition was used. Phase I consisted of selecting a software product to enable meeting all capabilities stated above. Phase II selected a service provider to test, integrate, deploy, and maintain the solution. Acquisition complete.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity
3600: *Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development*

R-1 Program Element (Number/Name)
PE 0901279F / *Facilities Operation - Administrative*

F. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0901279F / <i>Facilities Operation - Administrative</i>	Project (Number/Name) 671017 / <i>CE IT Transformation</i>
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Configuration Development	C/Various	Multiple : Multiple	-	1.900	Oct 2014	0.000		0.000		0.000		0.000	Continuing	Continuing	-
Subtotal			-	1.900		0.000		0.000		0.000		0.000	-	-	-

Remarks
Multiple less than \$1M contracts in FY 2015.

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Configuration Testing	C/Various	Multiple : Multiple	-	1.766	Mar 2015	0.000		0.000		0.000		0.000	Continuing	Continuing	-
Subtotal			-	1.766		0.000		0.000		0.000		0.000	-	-	-

Remarks
Multiple less than \$1M contracts in FY 2015.

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force								Date: February 2016		
Appropriation/Budget Activity 3600 / 7				R-1 Program Element (Number/Name) PE 0901279F / <i>Facilities Operation - Administrative</i>			Project (Number/Name) 671017 / <i>CE IT Transformation</i>			
	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract	
Project Cost Totals	-	3.666	0.000	0.000	0.000	0.000	-	-	-	

Remarks

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0901279F / <i>Facilities Operation - Administrative</i>	Project (Number/Name) 671017 / <i>CE IT Transformation</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Configuration Development and Testing	1	2015	4	2015
Configuration Development Complete (March)	2	2015	2	2015
Configuration Testing Complete (July)	4	2015	4	2015
Milestone C/Full Deployment Decision (FDD) (October)	1	2016	1	2016

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0901538F / <i>Financial Management Information Systems Development</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	395.781	91.766	95.130	10.581	0.000	10.581	6.975	6.951	6.966	7.087	Continuing	Continuing
672222: <i>Program Budget Enterprise Service (PBES)</i>	0.000	1.791	1.971	1.991	0.000	1.991	1.990	1.961	1.966	2.001	0.000	13.671
675177: <i>Cost Estimating Modeling (CEM)</i>	0.000	4.442	5.016	4.983	0.000	4.983	4.985	4.990	5.000	5.086	Continuing	Continuing
675179: <i>Defense Enterprise Accounting Management System Increment 1 (DEAMS Inc 1)</i>	395.781	85.533	88.143	3.607	0.000	3.607	0.000	0.000	0.000	0.000	0.000	573.064

Program MDAP/MAIS Code: N87

A. Mission Description and Budget Item Justification

This program element develops upgrades to existing financial management information systems. These upgrades are required to comply with auditability and transparency requirements as well as enable efficiencies in processing financial transactions. This program element also supports studies and analysis to improve future program planning and execution.

There are three projects within this program element: the Program and Budget Enterprise Service (PBES), the Cost Estimating Modeling (CEM), the Defense Enterprise Accounting and Management System (DEAMS) Increment 1 (Inc 1). A previous project, DEAMS Inc 2, was incorporated into DEAMS Inc 1 and requested FY 2015 funding was removed by Congressional action.

PBES is a software development effort that will utilize a service oriented architecture (SOA) to deliver budgeting and programming capability for the Air Force. PBES will replace legacy systems such as the Automated Budget Interactive Data Environment System (ABIDES) and the Resource Allocation Programming Information Decision System (RAPIDS) and will support the budget formulation and force programming process.

CEM is a knowledge-based study effort to improve Air Force-wide cost estimating by analyzing cost data and recommending changes to estimating models, methods, and tools.

DEAMS Inc 1 is a financial software effort to provide the Air Force with a modern accounting and finance system. It will allow the Air Force to comply with and fulfill statutory requirements for auditability by 2017, as required in the FY2010 NDAA, and will be Standard Financial Information Structure (SFIS) and Generally Accepted Accounting Principles (GAAP) compliant. Activities also include studies and analysis to support both current program planning and execution and future program planning.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force	Date: February 2016
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0901538F / <i>Financial Management Information Systems Development</i>
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This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	102.215	101.840	10.123	0.000	10.123
Current President's Budget	91.766	95.130	10.581	0.000	10.581
Total Adjustments	-10.449	-6.710	0.458	0.000	0.458
• Congressional General Reductions	0.000	-0.410			
• Congressional Directed Reductions	0.000	-6.300			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	-7.000	0.000			
• SBIR/STTR Transfer	-3.449	0.000			
• Other Adjustments	0.000	0.000	0.458	0.000	0.458

Change Summary Explanation

FY2015

- Congressional approved reprogramming of \$7.000 from RDT&E to O&M.
- SBIR/STTR Transfer of \$3.449M

FY2016

- Congressional General Reduction of \$0.410M for FFRDC
- Congressional Directed Reduction of \$6.300M for forward financing excluding funds for audit readiness

FY2017

- \$0.458M increase to meet updated DEAMS Service Cost Estimate

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force										Date: February 2016		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0901538F / <i>Financial Management Information Systems Development</i>				Project (Number/Name) 672222 / <i>Program Budget Enterprise Service (PBES)</i>			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
672222: <i>Program Budget Enterprise Service (PBES)</i>	0.000	1.791	1.971	1.991	0.000	1.991	1.990	1.961	1.966	2.001	0.000	13.671
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Program and Budget Enterprise Service (PBES) is a single solution software development effort that will utilize a service oriented architecture (SOA) to deliver budgeting and programming capability for the United States Air Force. PBES will replace legacy systems such as the Automated Budget Interactive Data Environment System (ABIDES) and the Resource Allocation Programming Information Decision System (RAPIDS), and will support the budget formulation and force programming process. Upon full deployment of PBES, the system will be compliant with the Standard Financial Information Structure (SFIS) and Standard Line of Accounting (SLOA) conventions, which will enable standardization of data across the Department of Defense (DoD).

Utilizing Business Process Re-engineering (BPR), the Air Force has designated PBES as the solution to deliver traceability of financial data in support of the programming and budgeting processes. Through the use of BPR, PBES will address excessive overhead, outdated business practices and other time-consuming support activities. PBES will make the budget formulation process more efficient by incorporating business best practices, organizing programming and budgeting personnel, as well as utilizing current technology. PBES will also eliminate checks and balances required of older technology, taking advantage of automated reconciliation services. In addition, the solution will allow the use of Authoritative Data Sources (ADS) for data exposure, resulting in more timely and accurate budget submissions to Office of the Secretary of Defense (OSD), Congress, and other internal and external customers.

PBES was originally conceived to be a multiple-release program. In FY2016, based on streamlining efforts to maximize efficiencies and synergies between the three Releases, PBES will be consolidated into a single delivery effort. Under the revised single effort, PBES will deliver the following capabilities: baseline extension, allocation of budgetary resources, development of budgetary options for the President's Budget submission, and the integration Congressional marks into the appropriated budget.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2015	FY 2016	FY 2017
Title: PBES	1.791	1.971	1.991
Description: Software development effort providing modern and enhanced budgeting and programming capabilities to the USAF. Funding supports engineering and technical development and implementation activities.			
FY 2015 Accomplishments:			
- Performed pre-MDD acquisition activities (e.g., market research, risk reduction, annual review) to support business process re-engineering (BPR) and requirements definition			

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016		
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0901538F / <i>Financial Management Information Systems Development</i>	Project (Number/Name) 672222 / <i>Program Budget Enterprise Service (PBES)</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2015	FY 2016	FY 2017
<p>- Discontinued Budget Formulation and Execution Manager (BFEM) effort due to potential solutions discovered during market research showing improved efficiencies and synergies</p> <p>FY 2016 Plans:</p> <ul style="list-style-type: none"> - Consolidate 4-release approach into 1 to gain efficiencies and synergies - Continue pre-MDD acquisition activities (e.g., market research, COA analysis and selection, analyze options for hosting environment) - Milestone Development Decision and preparations for RFP development - Identify Program Management Office <p>FY 2017 Plans:</p> <ul style="list-style-type: none"> - Milestone A/B - Award product development and system integrator contracts 				
Accomplishments/Planned Programs Subtotals		1.791	1.971	1.991
C. Other Program Funding Summary (\$ in Millions)				
N/A				
Remarks				
D. Acquisition Strategy				
PBES will be acquired using an incremental development-deployment approach. A competitive, best-value contracting strategy will be used. Establishment of a Program Management Office is planned post-MDD that will work in coordination with a Functional Management team.				
E. Performance Metrics				
Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.				

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0901538F / <i>Financial Management Information Systems Development</i>	Project (Number/Name) 672222 / <i>Program Budget Enterprise Service (PBES)</i>
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
PBES R1 Development	PO	Dept of Treasury : Washington, DC	0.000	0.850	Jan 2015	0.000		0.000		0.000		0.000	0.000	0.850	3.566
PBES R1 Proof of Concept	RO	AFLCMC : WPAFB, OH	0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000	1.000
PBES R1 Requirements Definition	RO	AFLCMC : WPAFB, OH	0.000	0.491	Jan 2015	0.000		0.000		0.000		0.000	0.000	0.491	0.491
PBES Product Development	Various	Not specified. : TBD	0.000	0.000		0.000		1.011	Jan 2017	0.000		1.011	0.000	1.011	-
Subtotal			0.000	1.341		0.000		1.011		0.000		1.011	0.000	2.352	-

Remarks
FY2015 funding and contract with Department of the Treasury to re-use existing government-developed budget tools.

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
PBES R1 Environment Hosting	MIPR	DISA : Fort Meade, MD	0.000	0.450	Feb 2015	0.000		0.000		0.000		0.000	0.000	0.450	-
PBES R1 Information Assurance	MIPR	AFLCMC : WPAFB, OH	0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000	0.115
PBES system engineering	MIPR	AFLCMC : WPAFB, OH	0.000	0.000		0.371	Jan 2016	0.000		0.000		0.000	0.000	0.371	-
PBES Environment/on-boarding	MIPR	AFLCMC : WPAFB, OH	0.000	0.000		0.300	Jan 2016	0.000		0.000		0.000	0.000	0.300	-
PBES Business/Data Analyst	MIPR	AFLCMC : WPAFB, OH	0.000	0.000		0.200	Feb 2016	0.000		0.000		0.000	0.000	0.200	-
PBES Data Architect	MIPR	AFLCMC : WPAFB, OH	0.000	0.000		0.200	Jan 2016	0.000		0.000		0.000	0.000	0.200	-
Subtotal			0.000	0.450		1.071		0.000		0.000		0.000	0.000	1.521	-

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0901538F / <i>Financial Management Information Systems Development</i>	Project (Number/Name) 672222 / <i>Program Budget Enterprise Service (PBES)</i>

	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Pre-MDD Acquisition Activities (e.g., Risk Reduction)	██████████																											
MDD						██																						
Initiate Program Office operations							██																					
Initiate RFP development								██																				
Milestone A/B (Dec 2016)											██																	
Contract award (software product development)												██																
Contract award (system integrator)															██													
Development activities																██████████												
Milestone C Full Deployment Decision (June 2019)																				██								

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0901538F / <i>Financial Management Information Systems Development</i>	Project (Number/Name) 672222 / <i>Program Budget Enterprise Service (PBES)</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Pre-MDD Acquisition Activities (e.g., Risk Reduction)	1	2015	4	2015
MDD	2	2016	2	2016
Initiate Program Office operations	3	2016	3	2016
Initiate RFP development	4	2016	4	2016
Milestone A/B (Dec 2016)	1	2017	1	2017
Contract award (software product development)	2	2017	2	2017
Contract award (system integrator)	3	2017	3	2017
Development activities	4	2017	4	2018
Milestone C Full Deployment Decision (June 2019)	3	2019	3	2019

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force										Date: February 2016		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0901538F / <i>Financial Management Information Systems Development</i>				Project (Number/Name) 675177 / <i>Cost Estimating Modeling (CEM)</i>			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
675177: <i>Cost Estimating Modeling (CEM)</i>	0.000	4.442	5.016	4.983	0.000	4.983	4.985	4.990	5.000	5.086	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Cost Estimating Modeling (CEM) provides and enhances Air Force-wide cost estimating capabilities by developing current cost data and estimating methods and tools. In collaboration with the OSD Cost Assessment Data Enterprise (CADE) project, these products will improve the quality, timeliness, and effectiveness of the acquisition program cost estimates required by statute (e.g., 10 USC 2366, 2433, 2434) and regulation (e.g., DoDI 5000.02) in support of Air Force and Department of Defense acquisition decisions, programming and execution decisions, and Congressional mandates.

The Air Force works to continuously improve cost estimating capabilities for each weapon system type (aircraft; ballistic missiles; electronics and aircraft modifications; ground stations and automated information systems; cross cutting databases; satellites and launch vehicles; tactical missiles; and munitions). Changing acquisition laws, regulations, initiatives, and technologies drive the need to revise cost estimating tools. For example, current shortfalls in capability reflect efforts needed to fill gaps in response to the laws and regulations such as the FY06 NDAA report {PL 109-163--Provisions relating to Major Defense Acquisition Programs (MDAPs)}, Weapon System Acquisition Reform Act (WSARA) {provisions related to improving cost estimating quality, especially earlier in the program life-cycle and affordability analysis}, Secretary of the Air Force (SECAF) Acquisition Excellence Plan {priorities to improve cost estimating capability and affordability analysis and improved cost estimating support to requirements process}, and new Office of the Secretary of Defense (OSD) policy {better buying power initiatives on enhanced trade-off analysis, affordability analysis, and will versus should cost analysis}.

This project will perform knowledge-based studies (KBS) analyzing historical data to produce cost estimating relationships (CERs) or statistical data to develop cost estimating databases, methods and tools across hundreds of product work breakdown structure (WBS) elements and functional cost elements within each weapon system type. The different weapon system types are: Aircraft, Ballistic Missiles, Electronics and Aircraft Modifications, Ground Stations and Automated Information Systems (AIS), Cross-Cutting Studies, Satellites and Launch Vehicles (Space Systems), and Tactical Missiles and Munitions. Some areas of cost modeling efforts that are cross-cutting within all weapon system types are: cost risk metrics, methods development, statistical model enhancements; software cost database, metrics, statistical model development; contract or engineering change order analysis models; other government cost elements (e.g., depot standup and government test); nuclear hardening; time phasing; reliability and maintainability; disposal; and commodity area price escalation analysis and models.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2015	FY 2016	FY 2017
Title: CEM	4.442	5.016	4.983
Description: Perform knowledge-based studies (KBS); develop databases, methods and models, and gap improvements for Aircraft, Ballistic Missiles, Tactical Missiles and Munitions, Electronics and Aircraft Modifications, Ground Stations and Automated Information Systems (AIS), Satellites, Launch Vehicles, and cross-cutting databases.			

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0901538F / <i>Financial Management Information Systems Development</i>	Project (Number/Name) 675177 / <i>Cost Estimating Modeling (CEM)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
<p><i>FY 2015 Accomplishments:</i></p> <ul style="list-style-type: none"> - Completed optimal data collection templates and began populating with General Commodity KBS data and initiated integration with OSD Cost Assessment Data Enterprise (CADE) project - Initiated Space Commodity KBS - Developed Cost Analysis Requirements Document (CARD) table templates and Cost and Software Data Report (CSDR) standardized plans - Initiated pilot data collection, for Major Defense Acquisition Programs (MDAPS) meeting milestone reviews - Initiated CARD and CSDR integration with OSD CADE project - Initiated CADE integration efforts for existing Selected Acquisition Report (SAR) database - Collected historical program data to fill gaps identified by KBS - Conducted Quarterly Progress Reviews with government cost community <p><i>FY 2016 Plans:</i></p> <ul style="list-style-type: none"> - Populate optimal data collection templates with General Commodity and Space Commodity KBS data - Develop CARD and CSDR templates as programs are scheduled to meet milestone reviews (DCAPES Inc 2B, KC-46, LRASM, LRSO, GBSD, HTM, F-22 Inc 3.2B) - Complete CARD and CSDR integration with OSD CADE project - Complete SAR database integration into OSD CADE project - Develop cost estimating relationships (CERs) and other cost estimating tools/methods - Continue to collect historical program data to fill gaps identified by KBS - Conduct Quarterly Progress Reviews with government cost community <p><i>FY 2017 Plans:</i></p> <ul style="list-style-type: none"> - Populate optimal data collection templates with General Commodity and Space Commodity KBS data - Develop CARD and CSDR templates as programs are scheduled to meet milestone reviews (programs TBD) - Revise CARD and CSDR templates with data collection lessons learned - Develop CERs and other cost estimating tools/methods with recent data collections - Continue to collect historical program data to fill gaps identified by KBS - Conduct Quarterly Progress Reviews with government cost community 			
Accomplishments/Planned Programs Subtotals	4.442	5.016	4.983

C. Other Program Funding Summary (\$ in Millions) N/A

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0901538F / <i>Financial Management Information Systems Development</i>	Project (Number/Name) 675177 / <i>Cost Estimating Modeling (CEM)</i>

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

Remarks

N/A

D. Acquisition Strategy

Contracts are expected to be firm-fixed price and/or cost plus, and will be awarded through full and open competition and follow Federal Acquisition Regulations (FAR) guidelines. Headquarters Air Force will provide contract management oversight and direction. Contracted knowledge-based studies progress will be reviewed on a quarterly basis and adjusted as appropriate.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0901538F / <i>Financial Management Information Systems Development</i>	Project (Number/Name) 675177 / <i>Cost Estimating Modeling (CEM)</i>
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Aircraft	Various	Various : Various	0.000	1.065	Feb 2015	1.165	Feb 2016	1.115	Feb 2017	0.000		1.115	Continuing	Continuing	TBD
Ballistic Missiles	C/FFP	Tecolote : Arlington, VA	0.000	0.250	Feb 2015	0.350	Feb 2016	0.350	Feb 2017	0.000		0.350	Continuing	Continuing	TBD
Electronics, Aircraft Modifications	C/FFP	Tecolote : Arlington, VA	0.000	0.475	Feb 2015	0.575	Feb 2016	0.575	Feb 2017	0.000		0.575	Continuing	Continuing	TBD
Ground Stations, Automated Information Systems	C/FFP	Tecolote : Arlington, VA	0.000	0.525	Feb 2015	0.625	Feb 2016	0.625	Feb 2017	0.000		0.625	Continuing	Continuing	TBD
Cross-Cutting Databases	Various	Various : Various	0.000	1.292	Feb 2015	1.395	Feb 2016	1.412	Feb 2017	0.000		1.412	Continuing	Continuing	TBD
Satellite, Launch Vehicles	Various	Various : Various	0.000	0.625	Jun 2015	0.696	Feb 2016	0.696	Feb 2017	0.000		0.696	Continuing	Continuing	TBD
Tactical Missiles, Munitions	C/FFP	Various : Various	0.000	0.210	Feb 2015	0.210	Feb 2016	0.210	Feb 2017	0.000		0.210	Continuing	Continuing	TBD
Subtotal			0.000	4.442		5.016		4.983		0.000		4.983	-	-	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0901538F / <i>Financial Management Information Systems Development</i>	Project (Number/Name) 675177 / <i>Cost Estimating Modeling (CEM)</i>
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Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			-	-		-		-		-		-	-	-	-
Project Cost Totals			0.000	4.442		5.016		4.983		0.000		4.983	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0901538F / <i>Financial Management Information Systems Development</i>	Project (Number/Name) 675177 / <i>Cost Estimating Modeling (CEM)</i>

	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021				
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	
General Commodity KBS Activities																													
Space Commodity KBS Activities																													
Optimal Data Collection Templates Deliverable (Feb 2015)																													
Populate Templates with General & Space Commodities KBS data (ongoing)																													
CARD Table Templates Deliverable (Jun 2015 - Initial Deliverable)																													
CSDR Plan Draft Templates Deliverable (Sep 2015)																													
SAR Database Integration with OSD CADE Project																													
Develop CERs/Estimating Tools/Models																													
Update 1 - Templates / CERs / Tools / Models Deliverables (Feb 2016)																													
Update 2 - Templates / CERs / Tools / Models Deliverables (Feb 2017)																													
Update 3 - Templates / CERs / Tools / Models Deliverables (Feb 2018)																													
Update 4 - Templates / CERs / Tools / Models Deliverables (Feb 2019)																													
Update 5 - Templates / CERs / Tools / Models Deliverables (Feb 2020)																													
Quarterly KBS Progress Review (Nov, Feb, May, Aug)																													

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0901538F / <i>Financial Management Information Systems Development</i>	Project (Number/Name) 675177 / <i>Cost Estimating Modeling (CEM)</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
General Commodity KBS Activities	1	2015	4	2021
Space Commodity KBS Activities	3	2015	4	2021
Optimal Data Collection Templates Deliverable (Feb 2015)	2	2015	2	2015
Populate Templates with General & Space Commodities KBS data (ongoing)	1	2015	4	2021
CARD Table Templates Deliverable (Jun 2015 - Initial Deliverable)	3	2015	3	2015
CSDR Plan Draft Templates Deliverable (Sep 2015)	4	2015	4	2015
SAR Database Integration with OSD CADE Project	3	2015	2	2016
Develop CERs/Estimating Tools/Models	1	2015	1	2016
Update 1 - Templates / CERs / Tools / Models Deliverables (Feb 2016)	2	2017	2	2017
Update 2 - Templates / CERs / Tools / Models Deliverables (Feb 2017)	2	2018	2	2018
Update 3 - Templates / CERs / Tools / Models Deliverables (Feb 2018)	2	2019	2	2019
Update 4 - Templates / CERs / Tools / Models Deliverables (Feb 2019)	2	2020	2	2020
Update 5 - Templates / CERs / Tools / Models Deliverables (Feb 2020)	2	2021	2	2021
Quarterly KBS Progress Review (Nov, Feb, May, Aug)	1	2015	4	2021

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force										Date: February 2016		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0901538F / <i>Financial Management Information Systems Development</i>				Project (Number/Name) 675179 / <i>Defense Enterprise Accounting Management System Increment 1 (DEAMS Inc 1)</i>			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
675179: <i>Defense Enterprise Accounting Management System Increment 1 (DEAMS Inc 1)</i>	395.781	85.533	88.143	3.607	0.000	3.607	0.000	0.000	0.000	0.000	0.000	573.064
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

MDAP/MAIS Code: N87

Defense Enterprise Accounting and Management System (DEAMS) is a commercial-off-the-shelf (COTS), Oracle-based software implementation effort that will provide an auditable, modern accounting and finance system. DEAMS is a Joint United States Air Force (USAF) and United States Transportation Command (USTRANSCOM) Enterprise Resource Planning (ERP) Program that will replace many existing accounting and finance legacy systems and will 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. DEAMS is compliant with the Clinger-Cohen Act, Business Enterprise Architecture (BEA), and integrates into Global Combat Support System-Air Force (GCSS-AF). When fully deployed, DEAMS will bring the Air Force in compliance with the Financial Improvement and Audit Readiness (FIAR) requirement in the 2010 NDAA.

DEAMS Inc 1 is planned as an eight-release program:

- Release 1 - Air Mobility Command (AMC) without Transportation Working Capital Funds (TWCF)
- Release 2 - AMC with TWCF, Defense Finance and Accounting Service (DFAS) Rome
- Release 3 - Air Combat Command (ACC), Air Force Global Strike Command (AFGSC), Air Education and Training Command (AETC)
- Release 4 - Air Force Reserve Command (AFRC), and Air National Guard (ANG) Geographically Separated Units (GSUs) to include DFAS Limestone, Air Force District of Washington (AFDW), Air Force Special Operations Command (AFSOC), U.S. Air Force Academy (USAFA), Pacific Air Forces (PACAF), and DFAS Japan
- Release 5 - U. S. Air Forces in Europe (USAFE), and DFAS Europe
- Release 6 - Air Force Space Command (AFSPC), Air Force Materiel Command (AFMC), and DFAS Columbus
- Release 7 - Conversion programs
- Release 8 - Surface Deployment and Distribution Command (SDDC), funded with U.S. Transportation Command Working Capital Funds

DEAMS Inc 1 is transitioning to the Operations and Support (O&S) phase post Milestone C to support deployed locations.

As reported in the November 30, 2015 Defense Acquisition Executive Summary Report and November 2015 significant change notification letters to the congressional defense committees, the DEAMS program did not meet the original estimate schedule threshold for Full Deployment Decision (FDD) in August 2015. A September 30,

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016		
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0901538F / <i>Financial Management Information Systems Development</i>	Project (Number/Name) 675179 / <i>Defense Enterprise Accounting Management System Increment 1 (DEAMS Inc 1)</i>		
<p>2015 Acquisition Decision Memorandum (ADM) directed the Air Force to return in February 2016 for an FDD review. This additional time is required to accommodate a verification of the ongoing mitigation actions to address the findings of the July 1, 2015 Initial Operational Test and Evaluation Report, as outlined in the September 30, 2015 ADM. Postponing FDD from August 2015 to February 2016 does not impact DEAMS pre-deployment activities, funding or schedule. DEAMS Inc 1 capability will continue to be deployed in FY2016-2017 as approved by the Milestone Decision Authority.</p> <p>Activities also include studies and analysis to support both current program planning and execution and future program planning.</p>				
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2015	FY 2016	FY 2017
<p>Title: Product Development</p> <p>Description: DEAMS Inc 1 capability development activities support multiple releases as described in the mission description. Development activities include design, build, test, data conversion, cutover from legacy systems and the resolution of deficiency reports and defects. Activities also include hardware support (system administration and database security) and storage service by Defense Information Systems Agency (DISA); continued development of interface to Global Combat Support System (GCSS); Enterprise Resource Planning (ERP) support; Independent Verification and Validation (IV&V); Developmental Release Field Support (DRFS) to include process execution, data scripts, etcetera; help desk support; Engineering Integration Services (EIS) for oversight of development tools and processes; deployment training and change management activities, etc. Provides acquisition, contract, finance, and cost management planning and support activities.</p> <p>FY 2015 Accomplishments:</p> <ul style="list-style-type: none"> - Initiated development activities affiliated with Releases 4, 5, and 6 - Transitioned DISA, GCSS, Level 0 Help Desk, and Deployment Support costs Post Milestone C to Operations and Maintenance (O&M) <p>FY 2016 Plans:</p> <ul style="list-style-type: none"> - Continue and complete DEAMS Inc 1 Release 4, 5, and 6 development activities in support of multiple deployments. - Initiate DEAMS Inc 1 Release 7 development activities in support of multiple deployments. <p>FY 2017 Plans:</p> <ul style="list-style-type: none"> - Complete any remaining development activities in support of remaining deployments. 		82.073	84.124	3.607
<p>Title: Test and Evaluation (T&E)</p> <p>Description: The T&E process will be a complete system test to validate system software requirements and to ensure compliance mandates are satisfied. The T&E efforts will be conducted at developer test site, Capabilities Integration Environment (CIE) and DISA production sites. The DEAMS Inc 1 Integrated Test Plan (ITP) and System Integrator (SI) Software Test Plan (STP) cover the details of DEAMS Inc 1 T&E.</p>		3.460	4.019	-

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0901538F / <i>Financial Management Information Systems Development</i>	Project (Number/Name) 675179 / <i>Defense Enterprise Accounting Management System Increment 1 (DEAMS Inc 1)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
<p><i>FY 2015 Accomplishments:</i></p> <ul style="list-style-type: none"> - Continued T&E activities for the following: <ul style="list-style-type: none"> -- System development services testing & government testing -- Software problem reports and defect resolution - Completed Initial Operational Test and Evaluation (IOT&E) <p><i>FY 2016 Plans:</i></p> <ul style="list-style-type: none"> - Complete T&E activities for the following: <ul style="list-style-type: none"> -- System development services testing & government testing -- Software problem reports and defect resolution -- Releases 4, 5, 6, and 7 development 			
Accomplishments/Planned Programs Subtotals	85.533	88.143	3.607

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u> <u>Base</u>	<u>FY 2017</u> <u>OCO</u>	<u>FY 2017</u> <u>Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• OPAF: BA03: Line Item #834470: DEAMS	4.298	4.755	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	-

Remarks

D. Acquisition Strategy
DEAMS Inc 1 will employ multiple contract actions as the various Releases are developed, tested, and deployed through FY 2017. Program office will provide management oversight of the system integrator and multiple subcontractors. Program reviews will occur throughout the lifecycle of the program. Development and deployment will occur via multiple Releases. Programmatic adjustments will occur as appropriate or as directed by Air Force leadership or by the Milestone Decision Authority.

E. Performance Metrics
Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force											Date: February 2016				
Appropriation/Budget Activity 3600 / 7				R-1 Program Element (Number/Name) PE 0901538F / <i>Financial Management Information Systems Development</i>				Project (Number/Name) 675179 / <i>Defense Enterprise Accounting Management System Increment 1 (DEAMS Inc 1)</i>							

Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
DRFS (Post Production Support, Level 2/3 Help Desk Support), System Stabilization, Design, Blueprint, Code, Development tools/ processes, etc.	C/FFP	Accenture Federal Services LLC : Various	109.287	38.219	Nov 2014	33.249	Nov 2015	2.959	Nov 2016	0.000		2.959	0.000	183.714	-
DRFS (Level 0 Help Desk Support)	C/FFP	The Greentree Group : Dayton, OH	2.491	0.552	Oct 2014	0.000		0.000		0.000		0.000	0.000	3.043	-
ESB messaging, adapters, web services, security, digital signature service, etc.	MIPR	GCSS-AF : Gunter AFB, AL	6.266	0.640	Oct 2014	0.000		0.000		0.000		0.000	0.000	6.906	-
Computing and storage support, system administration, security, storage, etc.	MIPR	DISA : Various	26.967	1.037	Oct 2014	0.000		0.000		0.000		0.000	0.000	28.004	-
Direct Mission Support (Development/Integration Environments)	Various	Various : Various	82.013	9.472	Oct 2014	12.988	Oct 2015	0.000		0.000		0.000	0.000	104.473	-
Oracle R12 Support, ERP Support	C/FFP	SRISYS : West Chester, OH	0.000	3.093	Nov 2014	2.600	Nov 2015	0.000		0.000		0.000	0.000	5.693	-
SME Support, General Ledger Reports and Analysis, Business Process Analysis, Master Data Conversion and Training Development	C/T&M	Kearney and Company : Various	73.593	14.662	Mar 2015	16.015	Mar 2016	0.000		0.000		0.000	0.000	104.270	-
Change Management, Strategic Communications	C/FFP	SAIC : Dayton, OH	1.511	0.816	Dec 2014	1.889	Dec 2015	0.648	Dec 2016	0.000		0.648	0.000	4.864	-
Information Assurance (IA) / Risk Management Framework (RMF)	C/CPFF	Jacobs Technology : Dayton, OH	1.087	0.567	Nov 2014	0.584	Nov 2015	0.000		0.000		0.000	0.000	2.238	2.238

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force											Date: February 2016				
Appropriation/Budget Activity 3600 / 7				R-1 Program Element (Number/Name) PE 0901538F / <i>Financial Management Information Systems Development</i>				Project (Number/Name) 675179 / <i>Defense Enterprise Accounting Management System Increment 1 (DEAMS Inc 1)</i>							

Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
ERP System Integration	C/FFP	Credence Management Solutions LLC : Dayton, OH	10.706	4.600	Jun 2015	8.259	Jun 2016	0.000		0.000		0.000	0.000	23.565	-
FFRDC ERP Engineering	C/Various	The MITRE Corporation : Various	10.476	0.942	Oct 2014	1.415	Oct 2015	0.000		0.000		0.000	0.000	12.833	-
Independent Verification and Validation (IV&V)	C/FFP	JYG Innovations : Dayton, OH	6.525	1.324	Jan 2015	0.000		0.000		0.000		0.000	0.000	7.849	-
ETASS (Engineering)	C/CPFF	Jacobs Technology : Dayton, OH	26.819	3.199	Nov 2014	4.784	Nov 2015	0.000		0.000		0.000	0.000	34.802	34.466
Subtotal			357.741	79.123		81.783		3.607		0.000		3.607	0.000	522.254	-

Remarks
DMS data are a consolidation of multiple less than \$1M contracts.

DRFS: Developmental Release Field Support
DISA: Defense Information Systems Agency
ERP: Enterprise Resource Planning
ESB: Enterprise Service Bus
ETASS: Engineering and Technology Acquisition Support Services
FFRDC: Federally Funded Research and Development Center
GCSS-AF: Global Combat Support System - Air Force
SME: Subject Matter Expert

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force											Date: February 2016				
Appropriation/Budget Activity 3600 / 7				R-1 Program Element (Number/Name) PE 0901538F / <i>Financial Management Information Systems Development</i>				Project (Number/Name) 675179 / <i>Defense Enterprise Accounting Management System Increment 1 (DEAMS Inc 1)</i>							

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Test services from AFOTEC, JITC, LDTO and other miscellaneous test resources	MIPR	Various : Various	13.055	3.460	Oct 2014	4.019	Oct 2015	0.000		0.000		0.000	0.000	20.534	-
Subtotal			13.055	3.460		4.019		0.000		0.000		0.000	0.000	20.534	-

Remarks
 AFOTEC: Air Force Operational Test and Evaluation Center
 JITC: Joint Interoperability Test Command
 LDTO: Lead Developmental Test Organization

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Management Administration costs	Various	AFLCMC : Wright-Patterson AFB, OH	9.177	0.726	Oct 2014	0.879	Oct 2015	0.000		0.000		0.000	0.000	10.782	-
Economic/Sustainment Analysis Support	C/CPAF	Peerless Technologies : Dayton, OH	1.097	1.070	Oct 2014	0.000		0.000		0.000		0.000	0.000	2.167	2.449
Program Management Office Support	C/CPFF	Quantech Services : Lexington, MA	14.711	1.154	Apr 2015	1.462	Oct 2015	0.000		0.000		0.000	0.000	17.327	-
Subtotal			24.985	2.950		2.341		0.000		0.000		0.000	0.000	30.276	-

Remarks
 A&AS: Advisory & Assistance Services

	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract	
Project Cost Totals		395.781	85.533	88.143	3.607	0.000	3.607	0.000	573.064	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0901538F / <i>Financial Management Information Systems Development</i>	Project (Number/Name) 675179 / <i>Defense Enterprise Accounting Management System Increment 1 (DEAMS Inc 1)</i>

	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
DEAMS Inc 1, Milestone C (Feb 2015)	■																											
DEAMS Inc 1, Initial Operational Capability (May 2015)			■																									
DEAMS Inc 1, Full Deployment Decision (FDD)							■																					
DEAMS Inc 1, Full Deployment (FD)												■																
DEAMS Inc 1 Initial Operational Test & Evaluation (IOT&E)	■	■	■																									
DEAMS Inc 1 Release 4 Development Activity	■	■	■	■																								
DEAMS Inc 1 Release 5 Development Activity	■	■	■	■	■	■	■	■																				
DEAMS Inc 1 Release 6 Development Activity	■	■	■	■	■	■	■	■	■	■	■	■																
DEAMS Inc 1 Release 7 Development Activity							■	■																				
DEAMS Inc 1 Release 8 Development Activity (funded by U.S. Transportation Command)													■	■	■	■												
Deploy DEAMS Inc 1 Capability (Oct 2014, Feb 2015, Jun 2015)	■	■	■	■																								
Deploy DEAMS Inc 1 Capability (Oct 2015, Mar 2016, Jun 2016)							■	■																				
Deploy DEAMS Inc 1 Capability (Oct 2016)												■																

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0901538F / <i>Financial Management Information Systems Development</i>	Project (Number/Name) 675179 / <i>Defense Enterprise Accounting Management System Increment 1 (DEAMS Inc 1)</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
DEAMS Inc 1, Milestone C (Feb 2015)	2	2015	2	2015
DEAMS Inc 1, Initial Operational Capability (May 2015)	3	2015	3	2015
DEAMS Inc 1, Full Deployment Decision (FDD)	2	2016	2	2016
DEAMS Inc 1, Full Deployment (FD)	1	2017	1	2017
DEAMS Inc 1 Initial Operational Test & Evaluation (IOT&E)	1	2015	3	2015
DEAMS Inc 1 Release 4 Development Activity	1	2015	2	2016
DEAMS Inc 1 Release 5 Development Activity	1	2015	3	2016
DEAMS Inc 1 Release 6 Development Activity	1	2015	4	2016
DEAMS Inc 1 Release 7 Development Activity	1	2016	4	2016
DEAMS Inc 1 Release 8 Development Activity (funded by U.S. Transportation Command)	1	2017	4	2018
Deploy DEAMS Inc 1 Capability (Oct 2014, Feb 2015, Jun 2015)	1	2015	4	2015
Deploy DEAMS Inc 1 Capability (Oct 2015, Mar 2016, Jun 2016)	1	2016	4	2016
Deploy DEAMS Inc 1 Capability (Oct 2016)	1	2017	1	2017

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