

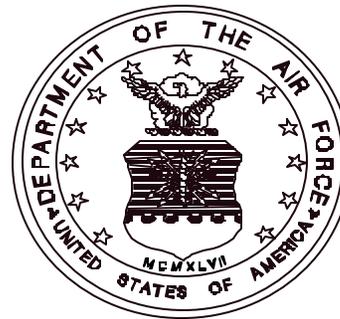
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DEPARTMENT OF THE AIR FORCE

FISCAL YEAR 2003 PRESIDENT'S BUDGET

RESEARCH, DEVELOPMENT, TEST AND EVALUATION

DESCRIPTIVE SUMMARIES



FEBRUARY 2002

VOLUME II

BUDGET ACTIVITY 4 - 6

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**Fiscal Year 2003 President's Budget
RDT&E Descriptive Summaries, Volume II
February 2002**

INTRODUCTION AND EXPLANATION OF CONTENTS

1. (U) GENERAL. This document has been prepared to provide information on the United States Air Force (USAF) Research, Development, Test and Evaluation (RDT&E) program elements and projects in the FY 2003 President's Budget. All formats in this document are in accordance with the revised guidelines of the DoD 7000.14R, Financial Management Regulation, Volume 2B, Chapter 5, with the exception of the R-3 exhibit. The USAF could not support the new format matrix because our programs do not track their programs in the manner required to complete the exhibit.

- d. Contents: Exhibits R-2, R-2a and R-3 provide narrative information for all RDT&E program elements and projects within the USAF FY2003 RDT&E program except the classified program elements. The formats and contents of this document are in accordance with the guidelines and requirement of the Congressional committees insofar as possible.
- e. The "Other Program Funding Summary" portion of the R-2 includes, in addition to RDT&E funds, Procurement funds and quantities, Military Construction appropriation funds on specific development programs, Operations and Maintenance appropriation funds where they are essential to the development effort described, and where appropriate, Department of Energy (DOE) costs.
- f. The Justification book has been assembled in accordance with DoD 7000.14R, Financial Management Regulation, Volume 2B, Chapter 5, Section 050402 with the exception of the R-1, Project Funding Listing which was distributed under a separate cover due to classification.

2. (U) CLASSIFICATION

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

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PROGRAM ELEMENT COMPARISON SUMMARY

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PROGRAM ELEMENT (by BUDGET ACTIVITY)

REMARKS

BUDGET ACTIVITY #1: BASIC RESEARCH (Volume I)

N/A

BUDGET ACTIVITY 2: APPLIED RESEARCH (Volume I)

0602102F Materials

In FY 2003, Project 4347, Materials for Structures, Propulsion and Subsystems, were transferred to PE 0602500F, Project 5025, Space Materials Development, in conjunction with the Space Commission recommendation to consolidate all space unique activities.

In FY 2003, Project 4348, Materials for Electronics, Optics and Surveillance, efforts were transferred to PE 0602500F, Project 5025, Space Materials Development, in conjunction with the Space Commission recommendation to consolidate all space unique activities.

In FY 2003, Project 5015, Rocket Materials Technology, efforts were transferred to PE 0602500F, Project 5025, Space Materials Development, in conjunction with the Space Commission recommendation to consolidate all space unique activities.

In FY 2003, Project 4349, Materials Technology for Sustainment, efforts were transferred to PE 0602500F, Multi-Disciplinary Space Technology, Project 5025, Space Materials Development, in conjunction with the Space Commission recommendation to consolidate all space unique activities.

In FY 2003, Project 5015, Rocket Materials Technology, efforts were transferred from PE 0602203F, Aerospace Propulsion, Project 4847, Rocket Propulsion Technology.

0602201F Aerospace Flight Dynamics

In FY 2003, Project 2403, Flight Control and Vehicle-Pilot Interface, efforts were transferred to PE 0602500F, Multi-Disciplinary Space Technology, Project 5030, Applied Space Access Vehicle Technology, in conjunction with the Space Commission recommendation to consolidate all space unique activities..

0602202F Human Effectiveness Applied Research

In FY 2003, Project 7184, Crew System Interface and Biodynamics, efforts were transferred to Project 7757, Bioeffects and Protection, to align resources with the Air Force Research Laboratory organization.

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PROGRAM ELEMENT (by BUDGET ACTIVITY)

REMARKS

In FY 2003, Project 7757, Bioeffects and Protection, efforts were transferred from Project 7184, Crew System Interface and Biodynamics, to align resources with the Air Force Research Laboratory organization.

In FY 2003, Project 7184, Crew System Interface and Biodynamics, efforts were transferred to PE 0602500F, Multi-Disciplinary Space Technology, Project 5024, Human Centered Applied Space Technology, in conjunction with the Space Commission recommendation to consolidate all space unique activities.

0602203F Aerospace Propulsion

In FY 2003, Project 3012, Advanced Propulsion Technology, efforts were transferred to PE 0602500F, Multi-Disciplinary Space Technology, Project 5025, Space Materials Development, in conjunction with the Space Commission recommendation to consolidate all space unique activities.

In FY 2003, Project 4847, Rocket Propulsion Technology, efforts were transferred to PE 0602102F, Materials, Project 5015, Rocket Materials Technology.

In FY 2003, Project 4847, Rocket Propulsion Technology, efforts were transferred to PE 0602500F, Multi-Disciplinary Space Technology, Project 5026, Rocket Propulsion Component Technology, in conjunction with the Space Commission recommendation to consolidate all space unique activities.

0602204F Aerospace Sensors

In FY 2003, Project 2002, Electronic Component Technology, efforts were transferred to PE 0602500F, Multi-Disciplinary Space Technology, Projects 5028, Space Sensors, Photonics and RF Processes, in conjunction with the Space Commission recommendation to consolidate all space unique activities.

In FY 2003, Project 2002, Electronic Component Technology, efforts were transferred to PE 0602500F, Multi-Disciplinary Space Technology, Projects 5029, Space Sensor and Countermeasure Technology, in conjunction with the Space Commission recommendation to consolidate all space unique activities.

In FY 2003, Project 6095, Sensor Fusion Technology, efforts were transferred to PE 0602500F, Multi-Disciplinary Space Technology, Projects 5028, Space Sensors, Photonics and RF Processes, in conjunction with the Space Commission recommendation to consolidate all space unique activities.

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PROGRAM ELEMENT (by BUDGET ACTIVITY)

REMARKS

In FY 2003, Project 6095, Sensor Fusion Technology, were transferred to PE 0602500F, Multi-Disciplinary Space Technology, Project 5029, Space Sensor and Countermeasure Technology, in conjunction with the Space Commission recommendation to consolidate all space unique activities.

In FY 2003, Project 7622, RF Sensors and Countermeasures Technology, efforts were transferred to PE 0602500F, Multi-Disciplinary Space Technology, Project 5029, Space Sensors and Countermeasures Technology, in conjunction with the Space Commission recommendation to consolidate all space unique activities.

In FY 2003, Project 2002, Electronic Component Technology, efforts were transferred to Project 5016, Photonic Component Technology.

In FY 2003, Project 5016, Photonic Component Technology, efforts were transferred from Project 2002, Electronic Component Technology.

In FY 2003, Project 7622, RF Sensors and Countermeasure Technology, efforts were transferred to Project 5017, RF Processing for ISR Sensors.

In FY 2003, Project 5017, RF Processing for ISR Sensors, efforts were transferred from Project 7622, RF Sensors and Countermeasures Technology.

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PROGRAM ELEMENT (by BUDGET ACTIVITY)

0602500F Multi-Disciplinary Space Technology

REMARKS

In FY 2003, this is a new PE.

In FY 2003, Project 5023, Laser & Imaging Space Technology, efforts were transferred from PE 0602605F, Directed Energy Technology, Project 4866, Laser & Imaging Technology, in conjunction with the Space Commission recommendation to consolidate space unique activities.

In FY 2003, Project 5024, efforts were transferred from PE 0602202F, Human Effectiveness Applied Research, Project 7184, Crew System Interface and Biodynamics, in conjunction with the Space Commission recommendation to consolidate all space unique activities.

In FY 2003, Project 5025, Space Materials Development, efforts were transferred from PE 0602102F, Materials, Project 4347, Materials for Structures, Propulsion and Subsystems, in conjunction with the Space Commission recommendation to consolidate all space unique activities.

In FY 2003, Project 5025, Space Materials Development, efforts were transferred from PE 0602102F, Materials, Project 4348, Materials for Electronics, Optics and Surveillance, in conjunction with the Space Commission recommendation to consolidate all space unique activities.

In FY 2003, Project 5025, Space Materials Development, efforts were transferred from PE 0602102F, Materials, Project 4349, Materials Technology for Sustainment, in conjunction with the Space Commission recommendation to consolidate all space unique activities.

In FY 2003, Project 5025, Space Materials Development, efforts were transferred from PE 0602102F, Materials, Project 5015, Rocket Materials Technology, in conjunction with the Space Commission recommendation to consolidate all space unique activities.

In FY 2003, Project 5026, Rocket Propulsion Component Technology, efforts were transferred from PE 0602203F, Aerospace Propulsion, Project 4847, Rocket Propulsion Technology, in conjunction with the Space Commission recommendation to consolidate all space unique activities.

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PROGRAM ELEMENT (by BUDGET ACTIVITY)

REMARKS

In FY 2003, Project 5027, High Speed Airbreathing Propulsion Technology, efforts were transferred from PE 0602203F, Aerospace Propulsion, Project 3012, Advanced Propulsion Technology, in conjunction with the Space Commission recommendation to consolidate all space unique activities.

In FY 2003, Project 5028, Space Sensors, Photonics and RF Processes, efforts were transferred from PE 0602204F, Aerospace Sensors, Project 2002, Electronic Component Technology, in conjunction with the Space Commission recommendation to consolidate all space unique activities.

In FY 2003, Project 5029, Space Sensor and Countermeasure Technology, efforts were transferred from PE 0602204F, Aerospace Sensors, Project 2002, Electronic Component Technology, in conjunction with the Space Commission recommendation to consolidate all space unique activities.

In FY 2003, Project 5029, Space Sensor and Countermeasure Technology, efforts were transferred from PE 0602204F, Aerospace Sensors, Project 6095 Sensor Fusion Technology, in conjunction with the Space Commission recommendation to consolidate all space unique activities.

In FY 2003, Project 5029, Space Sensor and Countermeasure Technology, efforts were transferred from PE 0602204F, Aerospace Sensors, Project 7622, RF Sensors and Countermeasures Technology, in conjunction with the Space Commission recommendation to consolidate all space unique activities.

In FY 2003, Project 5030, Applied Space Access Vehicle Technology, efforts were transferred from PE 0602201F, Aerospace Vehicle Technologies, Project 2403, Flight Control/Vehicle-Pilot Interface, in conjunction with the Space Commission recommendation to consolidate all space unique activities.

0602601F Space Technology

In FY 2003, Project 1010, Space Survivability & Surveillance, efforts were transferred to Project 5018, Spacecraft Protection Technology.

In FY 2003, Project 5018, Spacecraft Protection Technology, efforts were transferred from Project 1010, Space Survivability & Surveillance.

PROGRAM ELEMENT COMPARISON SUMMARY

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PROGRAM ELEMENT (by BUDGET ACTIVITY)

REMARKS

0602605F Directed Energy Technology

In FY 2003, Project 4866, Laser & Imaging Technology, efforts were transferred to PE 0602500F, Multi-Disciplinary Space Technology, Project 5023, Laser & Imaging Space Technology, in conjunction with the Space Commission recommendation to consolidate all space unique activities.

BUDGET ACTIVITY #3: ADVANCED TECHNOLOGY DEVELOPMENT (Volume I)

0603112F Adv Materials For Weapon Sys

In FY 2003, Project 2100, Laser Hardened Materials, efforts were transferred to PE 0603500F, Multi-Disciplinary Advanced Development Space Technology, Project 5032, Advanced Space Materials, in conjunction with the Space Commission recommendation to consolidate all space unique activities.

In FY 2003, Project 3946, Materials Transition, efforts were transferred to PE 0603500F, Multi-Disciplinary Advanced Development Space Technology, Project 5032, Advanced Space Materials, in conjunction with the Space Commission recommendation to consolidate all space unique activities.

0603203F Advanced Aerospace Sensors

In FY 2003, Project 69DF, Target Attack and Recognition Technology, efforts were transferred to Project 5019, Advanced RF Technology for ISR Sensors, in conjunction with the Space Commission recommendation to consolidate all space unique activities.

In FY 2003, Project 665A, Advanced Aerospace Sensors Technology, efforts were transferred to PE 0603500F, Multi-Disciplinary Advanced Development Space Technology, Project 5034, Advanced Space Sensors, in conjunction with the Space Commission recommendation to consolidate all space unique activities.

In FY 2003, Projects 665A, Advanced Aerospace Sensors Technology, were transferred to Project 5019, Advanced RF Technology for ISR Sensors, in conjunction with the Space Commission recommendation to consolidate all space unique activities.

0603216F Aerospace Prop and Power Technology

In FY 2003, Project 4922, Space and Missile Rocket Propulsion, efforts were transferred to PE 0603500F, Multi-Disciplinary Advanced Development Space Technologies, Project 5033, Rocket Propulsion Demonstration, in conjunction with the Space Commission recommendation to consolidate all space unique activities.

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PROGRAM ELEMENT (by BUDGET ACTIVITY)	REMARKS
0603270F Electronic Combat Technology	<p>In FY 2003, Project 431G, RF Warning and Countermeasures Technology, efforts were transferred to PE 0603500F, Multi-Disciplinary Advanced Development Space Technology, Project 5034, Advanced Space Sensors, in conjunction with the Space Commission recommendation to consolidate all space unique activities.</p> <p>In FY 2003, Project 691X, EO/IR Warning and Countermeasures Technology, efforts were transferred to PE 0603500F, Multi-Disciplinary Advanced Development Space Technology, Project 5034, Advanced Space Sensors, in conjunction with the Space Commission recommendation to consolidate all space unique activities.</p>
0603231F Crew System and Personnel Protection Technology	<p>In FY 2003, Project 3257, Helmet-Mounted Sensory Technology, efforts were transferred to Project 5020, Directed Energy Protective Systems, in order to align resources with the Air Force Research Laboratory organization.</p> <p>In FY 2003, Project 5020, Directed Energy Protective Systems, efforts were transferred from Project 3257, Helmet-Mounted Sensory Technology, in order to align resources within the Air Force Research Laboratory organization.</p>
0603401F Advanced Spacecraft Technology	<p>In FY 2003, Project 4400, Space Systems Protection, efforts were transferred from Project 5021, Space Systems Survivability, due to a realignment of work within the project.</p> <p>In FY 2003, Project 5021, Space Systems Survivability, efforts were transferred to Project 4400, Space Systems Protection, due to a realignment of work within the project.</p>
0603500F Multi-Disciplinary Advanced Development Space Technology	<p>In FY 2003, this is a new PE.</p> <p>In FY 2003, Project 5031, Advanced Optics and Laser Space Technology, efforts were transferred from PE 0603605F, Advanced weapons Technology, Project 3150, Advanced Optics Technology, in conjunction with the Space Commission recommendation to consolidate all space unique activities.</p> <p>In FY 2003, Project 5031, Advanced Optics and Laser Space Technology, efforts were transferred from PE 0603605F, Advanced Weapons Technology, Project 3647, Hi Energy Laser Technology, in conjunction with the Space Commission recommendation to consolidate all space unique activities.</p>

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PROGRAM ELEMENT (by BUDGET ACTIVITY)

REMARKS

In FY 2003, Project 5032, Advanced Space Materials, efforts were transferred from PE 0603112F, Advanced Materials for Weapon Systems, Project 2100, Laser Hardened Materials, in conjunction with the Space Commission recommendation to consolidate all space unique activities.

In FY 2003, Project 5032, Advanced Space Materials, efforts were transferred from PE 0603112F, Advanced Materials for Weapon Systems, Project 3946, Materials Transition, in conjunction with the Space Commission recommendation to consolidate all space unique activities.

In FY 2003, Project 5033, Rocket Propulsion Demonstration, efforts were transferred from PE 0603216F, Aerospace Propulsion and Power Technology, Project 4922, Space and Missile Rocket Propulsion, in conjunction with the Space Commission recommendation to consolidate all space unique activities.

In FY 2003, Project 5034, Advanced Space Sensors, efforts were transferred from PE 0603203F, Advanced Aerospace Sensors, Project 665A, Advanced Aerospace Sensors Technology, in conjunction with the Space Commission recommendation to consolidate all space unique activities.

In FY 2003, Project 5034, Advanced Space Sensors, efforts were transferred from PE 0603270F, Projects 691X, EO/IR Warning and Countermeasures Technology, in conjunction with the Space Commission recommendation to consolidate all space unique activities.

In FY 2003, Project 5034, Advanced Space Sensors, efforts were transferred from PE 0603270, Electronic Combat Technology, Projects 431G, RF Warning and Countermeasures, in conjunction with the Space Commission recommendation to consolidate all space unique activities.

0603605F Advanced Weapons Technology

In FY 2003, Project 3150, Advanced Optics Technology, efforts were transferred to PE 0603500F, Multi-Disciplinary Advanced Development Space Technology, Project 5031, Advanced Optics and Laser Space Technology, in conjunction with the Space Commission recommendation to consolidate all space unique activities.

PROGRAM ELEMENT COMPARISON SUMMARY

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PROGRAM ELEMENT (by BUDGET ACTIVITY)

REMARKS

In FY 2003, Project 3647, Hi Energy Laser Technology, were transferred to PE 0603500F, Multi-Disciplinary Advanced Development Space Technology, Project 5031, Advanced Optics and Laser Space Technology, in conjunction with the Space Commission recommendation to consolidate all space unique activities.

BUDGET ACTIVITY #4: DEMONSTRATION AND VALIDATION (DEM/VAL) (Volume II)

0603438F Space Control Technology

In FY 2003, Project 2611, Technology Insertion Plan & Analysis, efforts were transferred to PE 0604421F, Counterspace Systems, Project A001, Counter Satellite Communications System, in order to perform Engineering and Manufacturing Development activities.

In FY 2003, Project 2611, Technology Insertion Plan & Analysis, efforts were transferred to PE 0604421F, Counterspace Systems, Project A002, Counter Surveillance Reconnaissance System, in order to perform Engineering and Manufacturing Development activities.

In FY 2003, Project 2611, Technology Insertion Plan & Analysis, efforts were transferred to PE 0604421F, Counterspace Systems, Project A003, Rapid Identification Detection and Reporting System, in order to perform Engineering and Manufacturing Development activities.

0603845F Advanced Wideband System (AWS)

In FY 2003, Project 4944, Advanced Wideband System, includes new start efforts.

0603790F NATO Cooperative R&D

In FY 2003, Project 64NATO, NATO Cooperative R&D, efforts were transferred to PE 0603791F, International Space Cooperative R&D, Project 5035, International Space Cooperative R&D, in conjunction with the Space Commission recommendation to consolidate all space unique activities.

0603791F International Space Cooperative R&D

In FY 2003, this is a new PE.

In FY 2003, Project 5035, International Space Cooperative R&D, efforts transferred from PE 0603790F, NATO Cooperative R&D, Project 64NATO, NATO Cooperative R&D, in conjunction with the Space Commission recommendation to consolidate all space unique activities.

0603851F ICBM - Dem/Val

In FY 2003, Project 1020, ICBM Guidance Applications, includes new start efforts.

In FY 2003, Project 1023, Rocket System Launch Program, includes new start efforts.

PROGRAM ELEMENT COMPARISON SUMMARY

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PROGRAM ELEMENT (by BUDGET ACTIVITY)

REMARKS

0603858F Space Based Radar Dem/Val

In FY 2003, this is a new PE.

In FY 2003, Project A004, SBR Concept & Technical Development, efforts were transferred from PE 0604251F, Space-Based Radar EMD, Project 5009, SBR Concept and Technical Development, in order to correct a database error which loaded the funding in the wrong PE.

0604327F Hardened Target Munitions

In FY 2003, Project 4641, GBU-28 Upgrade, includes new start efforts.

BUDGET ACTIVITY #5: ENGINEERING & MANUFACTURING DEVELOPMENT (EMD) (Volume II)

0207434F Link 16 Support & Sustainment

In FY 2003, this is a new PE.

In FY 2003, Project 5049, JINTACCS, efforts transferred from PE 0604779F, Tactical Data Link Interoperability, Project 2189, JINTACCS, in order to comply with CSAF 17 Apr 01 direction to consolidate tactical data link/Link 16 funding and manage tactical data links as an enterprise.

In FY 2003, Project 5050, TCL System Integration, efforts were transferred from PE 0604754F, Tactical Data Link Integration, Project 4749, Link 16 System Integration, in order to comply with CSAF 17 Apr 01 direction to consolidate tactical data link/Link 16 funding and manage tactical data links as an enterprise.

In FY 2003, Project 5051, Family of Interoperable Operational Pictures (FIOP), efforts were transferred from PE 0604754F, Tactical Data Link Integration, Project 4992, Family of Interoperable Operational Pictures (FIOP), in order to comply with CSAF 17 Apr 01 direction to consolidate tactical data link/Link 16 funding and manage tactical data links as an enterprise.

0401318F CV-22

In FY 2003, Project 4103, CV-22, includes new start efforts.

0604226F B-1B

In FY 2003, Project Number 4596, B-1B, includes new start efforts.

0604240F B-2 Advanced Tech Bomber

In FY 2003, Project 3843, B-2 Advanced Technology Bomber, includes new start efforts.

0604251F Space Based Radar EMD

In FY 2003, Project 5009, SBR Concept and Technical Development, efforts were transferred to PE 0603858F, Space Based Radar Dem/Val, Project A004, SBR Concept & Technical Development.

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PROGRAM ELEMENT (by BUDGET ACTIVITY)

REMARKS

0604421F Counter Space Systems

In FY 2003, this is a new PE.

In FY 2003, Project A001, Counter Satellite Communications System, efforts were transferred from PE 0603438F, Space Control Technology, Project 2611, Technology Insertion Plan & Analysis, in order to begin system Engineering and Manufacturing Development activities.

In FY 2003, Project A002, Counter Surveillance Reconnaissance System, efforts were transferred from PE 0603438F, Space Control Technology, Project 2611, Technology Insertion Plan & Analysis, in order to begin system Engineering and Manufacturing Development activities.

In FY 2003, Project A003, Rapid Attack Identification Detection & Reporting System (RAIDRS), includes new start efforts.

In FY 2003, Project A003, Rapid Attack Identification Detection & Reporting System (RAIDRS), efforts were transferred from PE 0603438F, Space Control Technology, Project 2611, Technology Insertion Plan & Analysis, in order to begin system Engineering and Manufacturing Development activities.

0604617F Agile Combat Support

In FY 2003, Project 2895, Civil Engineering Readiness, includes new start efforts.

0604735F Combat Training Ranges

In FY 2003, Project 2286, Combat Training Ranges, includes new start efforts.

0604754F Tactical Data Link Integration

In FY 2003, Project 4749, Link 16 System Integration, efforts were transferred to PE 0207434F, Link 16 Support and Sustainment, Project 5050, TCL System Integration, in order to comply with CSAF 17 Apr 01 direction to consolidate tactical data link/Link 16 funding and manage tactical data links as an enterprise.

In FY 2003, Project 4992, Family of Interoperable Operational Pictures (FIOP), efforts transferred to PE 0207434F, Link 16 Support and Sustainment, Project 5051, Family of Interoperable Operational Pictures (FIOP), in order to comply with CSAF 17 Apr 01 direction to consolidate tactical data link/Link 16 funding and manage tactical data links as an enterprise.

0604779F Tactical Data Link Interoperability

In FY 2003, Project 2189, JINTACCS, efforts transferred to PE 0207434F, Link 16 Support and Sustainment, Project 5049, JINTACCS, in order to comply with CSAF 17 Apr 01 direction to consolidate tactical data link/Link 16 funding and manage tactical data links as an enterprise.

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PROGRAM ELEMENT (by BUDGET ACTIVITY)	REMARKS
0604851F ICBM - EMD	In FY 2003, Project 4823, Environmental Control System (ECS) Replacement Program, includes new start efforts.
BUDGET ACTIVITY #6: MANAGEMENT & SUPPORT (Volume II)	
0604256F Threat Simulator Development	In FY 2003, Project 3321, EW Ground Test Resources, includes new start efforts.
0604759F Major Test and Evaluation Investment	In FY 2003, Project 4597, Air Force Test Investments, includes new start efforts.
BUDGET ACTIVITY #7: OPERATIONAL SYSTEMS DEVELOPMENT (Volume III)	
0101120F Advanced Cruise Missile (ACM)	In FY 2003, Project 4798, Life Extension Program, was renamed (formerly Life Extension Study). This action did not change program content. In FY 2003, Project 4798, Life Extension Program, includes new start efforts.
0207134F F-15E Squadrons	In FY 2003, Project 670131, F-15E First Shooter (ALR-56C Processor Upgrade), includes new start efforts.
0207138F F-22 Squadrons	In FY 2003, Project 4785, F-22, includes new start efforts.
0207423F Advanced Communications Systems	In FY 2003, Project 4935, Joint Tactical Radio Systems (JTRS), includes new start efforts.
0207445F Fighter Tactical Data Link	In FY 2003, this is a new PE. In FY 2003, Project 5043, Fighter Tactical Data Link includes a new start efforts. In FY 2003, Project 5043, Fighter Tactical Data Link, efforts were transferred from PE 0207131F, A-10 Squadrons, Project 4809, A-10 Squadrons, in order to comply with CSAF 17 Apr 01 direction to consolidate tactical data link/Link 16 funding and manage tactical data links as an enterprise.
0207449F Multi-Sensor Command and Control Constellation (MC2C)	In FY 2003, this is a new PE.

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0207581F JOINT STARS	<p>In FY2003, Project 5064, Airframe, efforts were transferred from PE 0207581F, Joint Stars, Project 0003, JSTARS, in order to support transition to a new platform.</p> <p>In FY2003, Project 5065, Sensors, efforts were transferred from PE 0207581F, Joint Stars, Project 0003, JSTARS, in order to support transition to a new platform.</p>
0207581F JOINT STARS	<p>In FY 2003, Project 0003, JSTARS, efforts were transferred to PE 0207449F, Multi-Sensor Command and Control Constellation (MC2C), Project 5064, Airframe, in order to support transition to a new platform.</p> <p>In FY 2003, Project 0003, JSTARS, efforts were transferred to PE 0207449F, Multi-Sensor Command and Control Constellation (MC2C), Project 5065, Sensors, in order to support transition to a new platform.</p>
0303131F Minimum Essential Emergency Communications Network (MEECN)	<p>In FY 2003, Project 4610, Minuteman MEECN Program (MMP), was renamed (formerly MEECN EHF). This action did not change program content.</p>
0303141F Global Combat Support System (GCSS)	<p>In FY 2003, Project 4655, Integrated Logistics System - Supply (ILS-S), efforts were transferred to PE 0708611, Support Systems Development, Project 5044, Log Application Integrated Logistics System - Supply (LAILS-S) in order to align functional application development efforts into separate functional PE's.</p> <p>In FY 2003, 4904, Logistics Integration efforts transferred to PE 0708611F, Support Systems Development (SSD), Project 5042, Log Application Logistics Integration (LALI), in order to align functional application development efforts into separate functional PE's.</p> <p>In FY 2003, Project 4905, GCSS-AF Architectural Development, efforts were transferred to Project 5046, System Engineering and Integration (SE&I), in order to provide logical program grouping and allow for more effective oversight of this project.</p> <p>In FY 2003, Project 5046, SE&I, efforts were transferred from Project 4905, GCSS-AF Architectural Development.</p> <p>In FY 2003, Project 4906, GCSS-AF Domain Integration, efforts were transferred to Project Number 5046, System Engineering and Integration (SE&I), in order to provide logical program grouping and allow for more effective oversight of this project.</p>

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PROGRAM ELEMENT (by BUDGET ACTIVITY)	REMARKS
	In FY 2003, Project 5046, SE&I, efforts were transferred from Project 4906, GCSS-AF Domain Integration.
	In FY 2003, Project 4907, Financial Information Resource System (FIRST), efforts were transferred to PE 0901538F, FIRST, Project 5036, FIRST.
0303601F MILSATCOM Terminals	In FY 2003, Project 2487, Milsatcom Terminals, includes new start efforts.
0305148F Air Force Tactical Measurement & Signatures	In FY 2003, this is a new PE. In FY 2003, Project 5053, Air Force Tactical Measurement & Signatures, includes new start efforts.
0305182F Spacelift Range System	In FY 2003, Project 4137, Range Standardization and Automation (RSA), was renamed Launch and Test Range System (LTRS) Modernization, to better depict on-going efforts.
0305205F Endurance Unmanned Aerial Vehicles	In FY 2003, Project 4883, JTC/SIL MUSE, efforts were transferred from PE 0308601F, Modeling and Simulation Support, Project 5052, JTC/SIL MUSE, in order to comply with 1999 PBD 220.
0305207F Manned Reconnaissance System	In FY 2003, Project 4754, Cobra Ball, includes new start efforts.
0308601F Modeling and Simulation Support	In FY 2003, Project 5052, JTC/SIL MUSE, were efforts transferred from PE 0305205F, Endurance Unmanned Aerial Vehicles, Project 4883, JTC/SIL MUSE in order to comply with 1999 PBD 220.
0401130F C-17 Aircraft Squadrons	In FY 2003, Project 2569, C-17, includes new start efforts.
0401839F Airlift/Other Tactical Data Link	In FY 2003, this is a new PE.
0708012F Logistic Support Activities	In FY 2003, Project 5054, Core Automated Maintenance System (CAMS) Modernization, efforts were transferred from PE 0708611F, Support Systems Development, Project 4654, Integrated Maintenance Data System (IMDS), in order to modernize the CAMS system to a level where it can be converted to IMDS.

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PROGRAM ELEMENT (by BUDGET ACTIVITY)

REMARKS

0708611F Support Systems Development

In FY 2003, Project 4654, Integrated Maintenance Data Systems, efforts transferred to PE 0708012F, Logistics Support Activities, Project 5054, CAMS, in order to provide funding to modernize the project.

In FY 2003, Project 5042, Log Application Logistics Integration (LALI), efforts were transferred from PE 0303141F, Global Command Support System (GCSS), 4904, Logistics Integration in order to align functional application development efforts into separate functional PE's.

In FY 2003, Project 5044, Log Application Integrated Logistics System - Supply (LAILS-S), efforts were transferred from PE 0303141F, Global Combat Support System (GCSS), 4655, Integrated Logistics System-Supply (ILS-S), in order to align functional application development efforts into separate functional PE's.

In FY 2003, Project 5042, Log Application Logistics Integration (LALI), efforts transferred to PE 0303141F, Global Combat Support System, Project 4904, Logistics Integration, in order to align functional application development efforts into separate functional PE's.

0905138F Financial Information Resources System (FIRST)

In FY 2003, this is a new PE.

In FY 2003, project 5036, Financial Information Resource System (FIRST), efforts were transferred from PE 0303141F, GCSS-AF, project 4907, Financial Information Resource System (FIRST), in order to provide logical program grouping and allow for more effective oversight of this project.

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 2002	
BUDGET ACTIVITY 04 - Demonstration and Validation				PE NUMBER AND TITLE 0603260F Intelligence Advanced Development					
COST (\$ in Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	4,134	4,438	4,545	4,623	4,709	4,799	4,891	Continuing	TBD
3479 Advanced Sensor Exploitation	772	800	820	834	848	864	881	Continuing	TBD
3480 Automated Imagery Exploitation	1,244	1,308	1,317	1,340	1,364	1,390	1,416	Continuing	TBD
3481 Knowledge Based Tech For Intelligence	1,275	1,351	1,340	1,363	1,390	1,417	1,444	Continuing	TBD
3482 Science & Tech Intelligence Methodology	843	979	1,068	1,086	1,107	1,128	1,150	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0
<p>(U) A. Mission Description (U) Intelligence Advanced Development (IAD) demonstrates and validates advanced technology required to support warfighter needs for timely all source intelligence information. IAD research supports global awareness, consistent battlespace knowledge, precision information, and the execution of time critical missions. IAD projects provide better on-time information to the warfighter using new and existing data sources, streamline data analysis, reduce footprint required, extend life of sensors in place and enhance performance. Air Force Research Lab Rome Research Site (AFRL/IFE) works directly with users, employing a rapid prototyping evolutionary approach, integrating finished modules directly into the field. The programs are oriented toward specific shortfalls and deficiencies as documented by the major commands (MAJCOMS), unified commands, and intelligence organizations in their mission and function area plans. The goal of this program is to expedite technology transition from the laboratory to operational use via rapid prototyping. This AF program is focused on technology insertion to correct AF intelligence deficiencies at tactical or operation levels. This program bridges the transition of Advance Technology Demonstrations (ATDs), Integrated Technology Thrust Programs (ITTPs), and supports Defense Technology Objectives (DTOs).</p> <p>(U) B. Budget Activity Justification This program is in Demonstration and Validation, Budget Activity 4, because it demonstrates and validates advanced technology which enhances information / intelligence systems' capabilities and techniques.</p>									

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE		
BUDGET ACTIVITY		PE NUMBER AND TITLE		
04 - Demonstration and Validation		0603260F Intelligence Advanced Development		
(U) <u>C. Program Change Summary (\$ in Thousands)</u>				
		<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>
				<u>Total Cost</u>
(U)	Previous President's Budget	4,401	4,482	4,574
(U)	Appropriated Value	4,401	4,482	
(U)	Adjustments to Appropriated Value			
	a. Congressional/General Reductions		-44	
	b. Small Business Innovative Research	-134		
	c. Omnibus or Other Above Threshold Reprogram			
	d. Below Threshold Reprogram	-92		
	e. Rescissions	-41		
(U)	Adjustments to Budget Years Since FY 2002 PBR			-29
(U)	Current Budget Submit/FY 2003 PBR	4,134	4,438	4,545
(U)	<u>Significant Program Changes:</u>			
				TBD

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	DATE February 2002
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BUDGET ACTIVITY 04 - Demonstration and Validation	PE NUMBER AND TITLE 0603260F Intelligence Advanced Development	PROJECT 3479
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COST (\$ in Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
3479 Advanced Sensor Exploitation	772	800	820	834	848	864	881	Continuing	TBD

(U) **A. Mission Description**
 The project objectives are to develop, demonstrate and evaluate a near-real-time all source correlation/fusion capability by applying state-of-the-art data processing techniques for the receipt, correlation, templating and analysis of battlefield information. Capabilities will be developed in open systems architecture environment allowing for the greatest efficiency in terms of integrating or interfacing with other systems. There is an Air Force, DoD and Coalition need to correlate various sources of intelligence information (Communications Intelligence - COMINT, Electronic Intelligence - ELINT, Image Intelligence - IMINT) within seconds as opposed to hours with current manual methods. Project includes development of data correlation and predictive intelligence algorithms, target analysis and prioritization, air order of battle updates and tactical analysis techniques. This computerized approach will speed up the correlation of data from diverse sources of intelligence information, including COMINT, ELINT, and IMINT; providing faster situational awareness and threat assessment and replace manual systems with automated capabilities.

(U) **FY 2001 (\$ in Thousands)**
 (U) \$247 Initiated Time Sensitive Target Nominations (TSTN)
 (U) \$427 Initiated Enhanced Intel Prep of the Battlespace (EIPB)
 (U) \$98 Initiated Moving Target Exploitation (MTE) Tracking Enhancements
 (U) \$772 Total

(U) **FY 2002 (\$ in Thousands)**
 (U) \$295 Complete Time Sensitive Target Nominations (TSTN)
 (U) \$345 Continue Enhanced Intel Prep of the Battlespace (EIPB)
 (U) \$160 Continue Moving Target Exploitation (MTE) Tracking Enhancements
 (U) \$800 Total

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)							DATE February 2002																																																																																																																																																																																	
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<p>(U) <u>A. Mission Description Continued</u></p> <p>(U) <u>FY 2003 (\$ in Thousands)</u></p> <p>(U) \$190 Complete Enhanced Intel Prep of the Battlespace (EIPB)</p> <p>(U) \$410 Continue Moving Target Exploitation (MTE) Tracking Enhancements</p> <p>(U) \$220 Initiate Advanced Fusion Workstation Transition</p> <p>(U) \$820 Total</p> <p>(U) <u>B. Project Change Summary</u> Not Applicable</p> <p>(U) <u>C. 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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	DATE February 2002
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BUDGET ACTIVITY 04 - Demonstration and Validation	PE NUMBER AND TITLE 0603260F Intelligence Advanced Development	PROJECT 3479
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(U) E. Schedule Profile Continued

	<u>FY 2001</u>				<u>FY 2002</u>				<u>FY 2003</u>			
	1	2	3	4	1	2	3	4	1	2	3	4
X - Denotes planned event												

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2002			
BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT		
04 - Demonstration and Validation				0603260F Intelligence Advanced Development				3479		
(U) A. Project Cost Breakdown (\$ in Thousands)										
						<u>FY 2001</u>		<u>FY 2002</u>		<u>FY 2003</u>
(U)	Time Sensitive Target Nominations (TSTN)					247		295		
(U)	Enhanced Intel Prep of the Battlespace (EIPB)					427		345		190
(U)	Moving Target Exploitation (MTE) Tracking Enhancements					98		160		410
(U)	Network Centric Information Fusion									220
(U)	Total					772		800		820
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)										
(U) Performing Organizations:										
<u>Contractor or Government</u>	<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Performing Activity</u>	<u>Project Office</u>	<u>Total Prior to FY 2001</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Performing Activity</u>	<u>or Funding Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>						
<u>Product Development Organizations</u>										
	PRC (00-D-0012)	CPFF	27Feb 01			247	295			542
	Zel-Tech (01-C-0048)	CPFF	6 Mar 01			427	345	190	Continuing	TBD
	Northrup-Grumman (99-C-0067)	CPFF	20 Dec 00			98	160	410	Continuing	TBD
	TBD							220	Continuing	TBD
<u>Support and Management Organizations</u>										
N/A										
<u>Test and Evaluation Organizations</u>										
N/A										
(U) Government Furnished Property:										
<u>Item Description</u>	<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Delivery Date</u>		<u>Total Prior to FY 2001</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>or Funding Vehicle</u>	<u>Date</u>	<u>Date</u>							

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)				DATE					
04 - Demonstration and Validation				February 2002					
BUDGET ACTIVITY				PE NUMBER AND TITLE			PROJECT		
04 - Demonstration and Validation				0603260F Intelligence Advanced Development			3479		
(U) Government Furnished Property Continued:									
	<u>Contract</u>	<u>Award or</u>							
<u>Item</u>	<u>Method/Type</u>	<u>or Funding</u>	<u>Delivery</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Description</u>	<u>Vehicle</u>	<u>Date</u>	<u>Date</u>	<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Complete</u>	<u>Program</u>
<u>Product Development Property</u>									
N/A									
<u>Support and Management Property</u>									
<u>Test and Evaluation Property</u>									
				<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Subtotals</u>				<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Complete</u>	<u>Program</u>
Subtotal Product Development					772	800	820	TBD	TBD
Subtotal Support and Management									
Subtotal Test and Evaluation									
Total Project					772	800	820	TBD	TBD

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	DATE February 2002
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BUDGET ACTIVITY 04 - Demonstration and Validation	PE NUMBER AND TITLE 0603260F Intelligence Advanced Development	PROJECT 3480
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COST (\$ in Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
3480 Automated Imagery Exploitation	1,244	1,308	1,317	1,340	1,364	1,390	1,416	Continuing	TBD

(U) **A. Mission Description**
 This project demonstrates and validates the capability to more accurately and quickly interpret digital imagery and video by evaluating computer-assisted techniques to manipulate and overlay imagery, cartographic data, signal intelligence (SIGINT), and on-line intelligence data. The result of this effort will be more precise target locations and identifications, precise target reference scenes, and more accurate damage assessments; all developed for easy supportability on low-cost, commercially-available computer workstations.

- (U) **FY 2001 (\$ in Thousands)**
 (U) \$97 Initiated NATO Secondary Imagery Interoperability
 (U) \$148 Initiated eXploitation Tools for Video (XTV)
 (U) \$229 Initiated Smart Digital Imagery & Video Exploitation Tools
 (U) \$348 Continued Multi-Sensor Intel Exploitation Applications for GCCS
 (U) \$422 Continued Hyper-Spectral Image Exploitation
 (U) \$1,244 Total

- (U) **FY 2002 (\$ in Thousands)**
 (U) \$199 Continue NATO Secondary Imagery Interoperability
 (U) \$250 Continue eXploitation Tools for Video (XTV)
 (U) \$246 Complete Smart Digital Imagery & Video Exploitation Tools
 (U) \$186 Complete Multi Sensor Intel Exploitation Applications for GCCS
 (U) \$427 Complete Hyper-Spectral Image Exploitation
 (U) \$1,308 Total

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BUDGET ACTIVITY 04 - Demonstration and Validation	PE NUMBER AND TITLE 0603260F Intelligence Advanced Development	PROJECT 3480																																																																																																						
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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)										DATE February 2002				
BUDGET ACTIVITY					PE NUMBER AND TITLE					PROJECT				
04 - Demonstration and Validation					0603260F Intelligence Advanced Development					3480				
(U) <u>E. Schedule Profile Continued</u>														
		<u>FY 2001</u>					<u>FY 2002</u>					<u>FY 2003</u>		
	1	2	3	4	1	2	3	4	1	2	3	4		
(U)	Complete Multi-Sensor Intel Exploitation Applications for GCCS											X		
(U)	Complete Multi Spectral / Hyper Spectral Image Applications											X		
(U)	Continue NATO Secondary Imagery Interoperability													
(U)	Continue eXploitation Tools for Video													
(U)	Complete Smart Digitalk Imagery & Video Exploitation Tools											X		
(U)	Initiate Geospacial Intelligence Tools											X		
(U)	Initiate Hypershop											X		
(U)	Initiate Video Annotation											X		
(U)	Initiate Imagery Assurance and Exploitation											X		
	* - Denotes completed event													
	X - Denotes planned even													
Project 3480				Page 10 of 21 Pages				Exhibit R-2A (PE 0603260F)						

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2002				
BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT			
04 - Demonstration and Validation				0603260F Intelligence Advanced Development				3480			
(U) A. Project Cost Breakdown (\$ in Thousands)											
					<u>FY 2001</u>			<u>FY 2002</u>		<u>FY 2003</u>	
(U)	Multi Sensor Intel Exploitation Apps for GCCS				348			186			
(U)	NATO Second Imagery Interoperability				97			199		204	
(U)	eXploitation Tools for Video				148			250			
(U)	Smart Digital Imagery				229			246		302	
(U)	Hyper-Spectral Image Exploitation Toolkit (HIET)				422			427			
(U)	Geospatial Intelligence Tools									202	
(U)	Hypershop									178	
(U)	Video Annotation									152	
(U)	Imagery Assurance and Exploitation									279	
(U)	Total				1,244			1,308		1,317	
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)											
(U) Performing Organizations:											
<u>Contractor or Government</u>	<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Performing Activity</u>	<u>Project Office</u>	<u>Total Prior to FY 2001</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget to Complete</u>	<u>Total Program</u>	
	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>							
<u>Product Development Organizations</u>											
PAR, Inc. (01-C-0073)	CPFF	6 Apr 01				97	199	204	Continuing	TBD	
PRC (97-C-0030)	CPFF	1 Jun 01				148	250	302	Continuing	TBD	
Research Foundation, U. of Binghamton (00-1-0521)	Grant	8 Nov 00			154	229	246			629	
PAR, Inc. (98-C-0166)	CPFF	11 May 98			726	348	186			1,260	
PAR, Inc. (00-C-0046)	CPFF	1 Nov 00			110	422	427			959	
TBD								202	Continuing	TBD	
TBD								178	Continuing	TBD	
TBD								152	Continuing	TBD	
Project 3480				Page 11 of 21 Pages				Exhibit R-3 (PE 0603260F)			

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2002			
BUDGET ACTIVITY				PE NUMBER AND TITLE			PROJECT			
04 - Demonstration and Validation				0603260F Intelligence Advanced Development			3480			
(U) <u>Performing Organizations Continued:</u>										
<u>Product Development Organizations</u>							279		Continuing	TBD
TBD										
<u>Support and Management Organizations</u>										
N/A										
<u>Test and Evaluation Organizations</u>										
N/A										
(U) <u>Government Furnished Property:</u>										
	<u>Contract</u>									
	<u>Method/Type</u>	<u>Award or</u>								
<u>Item</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Delivery</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>	
<u>Description</u>	<u>Vehicle</u>	<u>Date</u>	<u>Date</u>	<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Complete</u>	<u>Program</u>	
<u>Product Development Property</u>										
N/A										
<u>Support and Management Property</u>										
N/A										
<u>Test and Evaluation Property</u>										
N/A										
				<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>	
<u>Subtotals</u>				<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Complete</u>	<u>Program</u>	
Subtotal Product Development				990	1,244	1,308	1,317	TBD	TBD	
Subtotal Support and Management										
Subtotal Test and Evaluation										
Total Project				990	1,244	1,308	1,317	TBD	TBD	

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)								DATE February 2002	
BUDGET ACTIVITY 04 - Demonstration and Validation				PE NUMBER AND TITLE 0603260F Intelligence Advanced Development				PROJECT 3481	
COST (\$ in Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
3481 Knowledge Based Tech For Intelligence	1,275	1,351	1,340	1,363	1,390	1,417	1,444	Continuing	TBD
<p>(U) <u>A. Mission Description</u> This project will improve Global Awareness, Dynamic Planning and Execution, providing knowledge bases and inference engines to exploit collected data for nine major commands on AF intelligence organizations. The development of the analytical aids is based on artificial intelligence techniques. The increased timeliness, efficiency and effectiveness derived will provide warning time and accuracy, allowing national/military authorities a greater range of options to avert, diminish or control a crisis.</p> <p>(U) <u>FY 2001 (\$ in Thousands)</u> (U) \$668 Initiated Broadsword Enhancements (U) \$607 Initiated Secure Information Delivery Trusted Transfer Agent (TTA) (U) \$1,275 Total</p> <p>(U) <u>FY 2002 (\$ in Thousands)</u> (U) \$517 Continue Secure Information Delivery Trusted Transfer Agent (TTA) --Phase 2: Reach Up (U) \$567 Continue Broadsword Enhancements (U) \$267 Initiate WebTAS Transition into CAOC-X (U) \$1,351 Total</p> <p>(U) <u>FY 2003 (\$ in Thousands)</u> (U) \$452 Continue Secure Information Delivery Trusted Transfer Agent (TTA) --Phase 2: Reach Up (U) \$552 Continue Broadsword Enhancements (U) \$336 Continue WebTAS Transition into CAOC-X (U) \$1,340 Total</p> <p>(U) <u>B. Project Change Summary</u> Not Applicable</p>									
Project 3481			Page 13 of 21 Pages				Exhibit R-2A (PE 0603260F)		

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2002			
BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT		
04 - Demonstration and Validation				0603260F Intelligence Advanced Development				3481		
(U) A. Project Cost Breakdown (\$ in Thousands)										
					<u>FY 2001</u>		<u>FY 2002</u>			<u>FY 2003</u>
(U)	Broadsword Enhancements				668		517			452
(U)	Secure Information Delivery TTA				607		567			552
(U)	WebTAS Transition into CAOC-X						267			336
(U)	Total				1,275		1,351			1,340
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)										
(U) Performing Organizations:										
<u>Contractor or</u>	<u>Contract</u>									
<u>Government</u>	<u>Method/Type</u>	<u>Award or</u>	<u>Performing</u>	<u>Project</u>						
<u>Performing</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Activity</u>	<u>Office</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Activity</u>	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>	<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Complete</u>	<u>Program</u>
<u>Product Development Organizations</u>										
	Synectics Corp (00-C-0073)	CPFF	3 Nov 00		45	668	567	452	Continuing	TBD
	Sterling Software (98-D-0013)	CPFF	27 Jan 00		600	607	517	552	Continuing	TBD
	TBD	TBD	TBD				267	336	Continuing	TBD
<u>Support and Management Organizations</u>										
N/A										
<u>Test and Evaluation Organizations</u>										
N/A										
(U) Government Furnished Property:										
	<u>Contract</u>									
	<u>Method/Type</u>	<u>Award or</u>	<u>Delivery</u>							
<u>Item</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Date</u>		<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Description</u>	<u>Vehicle</u>	<u>Date</u>	<u>Date</u>		<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Complete</u>	<u>Program</u>
<u>Product Development Property</u>										
N/A										

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE February 2002				
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT				
04 - Demonstration and Validation	0603260F Intelligence Advanced Development	3481				
(U) <u>Government Furnished Property Continued:</u>						
<u>Support and Management Property</u>						
N/A						
<u>Test and Evaluation Property</u>						
N/A						
	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Subtotals</u>	<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Complete</u>	<u>Program</u>
Subtotal Product Development	645	1,275	1,351	1,340	TBD	TBD
Subtotal Support and Management						
Subtotal Test and Evaluation						
Total Project	645	1,275	1,351	1,340	TBD	TBD

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)								DATE February 2002	
BUDGET ACTIVITY 04 - Demonstration and Validation				PE NUMBER AND TITLE 0603260F Intelligence Advanced Development				PROJECT 3482	
COST (\$ in Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
3482 Science & Tech Intelligence Methodology	843	979	1,068	1,086	1,107	1,128	1,150	Continuing	TBD
<p>(U) <u>A. Mission Description</u> Demonstrates and validates intelligence methodologies and techniques for operational employment of simulation models in support of Air Intelligence Agency (AIA) requirements. The methods and techniques will help AIA improve their analysis of current and future foreign weapon systems, and prevent technological surprises with regard to the capabilities of these systems.</p> <p>(U) <u>FY 2001 (\$ in Thousands)</u> (U) \$391 Completed Intelligence Analyst Associate (Build 2) for Automated Information Extraction (U) \$3 Continued Missile System Reentry Vehicle Algorithm Enhancements for NAIC (U) \$3 Completed Radio Frequency Weapons Modeling Improvements (HEIMDAL2+) (includes Laser Weapons Modeling Code (LODUR). (Reference companion PE 64750, Intelligence Equipment.) (U) \$294 Initiated Dynamic Info Operations Development Environment (DIODE) (U) \$152 Initiated Tel-Scope Situation Awareness (U) \$843 Total</p> <p>(U) <u>FY 2002 (\$ in Thousands)</u> (U) \$581 Continue Dynamic Info Operations Development Environment (DIODE) (U) \$0 Transition Missile System Reentry Vehicle Algorithm Enhancements for NAIC to PE 64750 (U) \$0 Transition LODUR to PE64750 (U) \$398 Continue Tel-Scope Situation Awareness (U) \$979 Total</p> <p>(U) <u>FY 2003 (\$ in Thousands)</u> (U) \$267 Continue DIODE for Enhanced Intel Prep of the Battlespace (EIPB) (U) \$292 Initiate Joint DIODE Integration Tools (U) \$341 Continue Tel-Scope Situation Awareness (U) \$168 Initiate Joint IADS View</p>									
Project 3482			Page 17 of 21 Pages				Exhibit R-2A (PE 0603260F)		

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)										DATE February 2002					
BUDGET ACTIVITY					PE NUMBER AND TITLE					PROJECT					
04 - Demonstration and Validation					0603260F Intelligence Advanced Development					3482					
(U) <u>A. Mission Description Continued</u>															
(U) <u>FY 2003 (\$ in Thousands) Continued</u>															
(U) \$1,068 Total															
(U) <u>B. Project Change Summary</u>															
Not Applicable															
(U) <u>C. Other Program Funding Summary (\$ in Thousands)</u>															
	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>						
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>							
(U) Related Activities:															
0602720F C3I Exploratory Development: information exploitation (image/video/text), multi-sensor collaboration, global information base.															
0603789F C3 Advanced Technology Development: correlation, fusion algorithms, visualization.															
0603726F C3 Subsystem Integration: advanced information technology, advanced memory technology.															
0604750F Intelligence Equipment: modeling and simulation, foreign threat assessment.															
0301335F Intelligence Data Handling: enhances DoD Intelligence Information Systems (DoDIIS).															
(U) <u>D. Acquisition Strategy</u>															
All major contracts within this Program Element were awarded after full and open competition.															
(U) <u>E. Schedule Profile</u>															
				<u>FY 2001</u>			<u>FY 2002</u>		<u>FY 2003</u>						
				1	2	3	4	1	2	3	4	1	2	3	4
(U) Transitioned Radio Frequency Modeling (HEIMDAL) & LODUR to PE 64750															
*															
(U) Transitioned Missile Sys RV Algorithm Enhancement to PE 64750															
*															
(U) Continue Tel-Scope Situation Awareness															
(U) Continue DIODE for EIPB															
(U) Completed Intel Analyst Associate (Build 2)															
*															
(U) Initiate Joint DIODE Integration Tools															
X															
(U) Initiate Joint IADS View															
X															
Project 3482					Page 18 of 21 Pages					Exhibit R-2A (PE 0603260F)					

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2002				
BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT			
04 - Demonstration and Validation				0603260F Intelligence Advanced Development				3482			
(U) A. Project Cost Breakdown (\$ in Thousands)											
						<u>FY 2001</u>		<u>FY 2002</u>		<u>FY 2003</u>	
(U)	Intelligence Analysts Associate (Build 2)					391					
(U)	Missile System Reentry Vehicle Algorithm Enhancement					3					
(U)	DIODE for Enhanced Intel Prep of the Battlespace (EIPB)					294		581		267	
(U)	Tel-Scope					152		398		341	
(U)	Joint DIODE Integration Tools									292	
(U)	Radio Frequency Weapons Modeling					3					
(U)	Joint IADS View									168	
(U)	Total					843		979		1,068	
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)											
(U) Performing Organizations:											
<u>Contractor or Government</u>	<u>Contract Method/Type</u>	<u>Award or Obligation Date</u>	<u>Performing Activity</u>	<u>Project Office</u>	<u>Total Prior to FY 2001</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget to Complete</u>	<u>Total Program</u>	
<u>Activity</u>	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>							
<u>Product Development Organizations</u>											
Calspan (96-C-0108)	CPAF	26 Sep 96			1,176	391				1,567	
SAIC (99-D-0137)	IDIQ	1 Jul 99			48	3				51	
Calspan (96-C-0108)	CPFF	31 Jul 98			97	3				100	
PRC, Inc (00-C-0045)	CPFF	1 Dec 00				294	581	267	Continuing	TBD	
PRC, Inc (01-C-0048)	CPFF	1 Feb 01				152	398	341	Continuing	TBD	
TBD	TBD	TBD						292	Continuing	TBD	
TBD	TBD	TBD						168	Continuing	TBD	
<u>Support and Management Organizations</u>											
N/A											
<u>Test and Evaluation Organizations</u>											
N/A											

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2002			
BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT		
04 - Demonstration and Validation				0603260F Intelligence Advanced Development				3482		
(U) Government Furnished Property:										
	<u>Contract</u>	<u>Award or</u>								
<u>Item</u>	<u>Method/Type</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Delivery</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Description</u>	<u>Vehicle</u>	<u>Date</u>	<u>Date</u>		<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Complete</u>	<u>Program</u>
<u>Product Development Property</u>										
N/A										
<u>Support and Management Property</u>										
N/A										
<u>Test and Evaluation Property</u>										
N/A										
					<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Subtotals</u>					<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Complete</u>	<u>Program</u>
Subtotal Product Development					1,321	843	979	1,068	TBD	TBD
Subtotal Support and Management										
Subtotal Test and Evaluation										
Total Project					1,321	843	979	1,068	TBD	TBD

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 2002	
BUDGET ACTIVITY 04 - Demonstration and Validation				PE NUMBER AND TITLE 0603319F Airborne Laser Technology				PROJECT 4269	
COST (\$ in Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
4269 Airborne Laser	386,130	0	0	0	0	0	0	0	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	TBD
<p>In FY 2002, 644269, Airborne Laser efforts transferred to PE 0603883C, 4030, Air-Based Boost, in order to complete program transition from the AF to the Ballistic Missile Defense Organization (BMDO) per OSD direction.</p> <p>(U) <u>A. Mission Description</u> The Airborne Laser (ABL) Program is an Acquisition Category 1D (ACAT 1D) program to design, build and test a laser weapon system to acquire, track and kill Theater Ballistic Missiles (TBMs) in the boost phase. This weapon system integrates three major subsystems (Laser, Beam Control, and Battle Management Command, Control, Communications, Computers and Intelligence (BMC4I)) into a modified commercial Boeing 747-400F aircraft. It also includes ABL-specific ground support. The program awarded the ABL PDRR (Program Definition Risk Reduction) contract to the Boeing/TRW/ Lockheed-Martin team in November 1996, to design, fabricate, integrate, and test a half-power ABL system. An Authority-to-Proceed (ATP-1) decision point was successfully attained in FY 1998. As a result of OSD direction, FY02 and outyear funding for ABL were transferred to the Ballistic Missile Defense Organization (BMDO). The Acquisition Category and Mission Designation are being reviewed by BMDO with OSD and the Air Force.</p> <p>(U) <u>FY 2001 (\$ in Thousands)</u></p> <p>(U) \$357,464 Continue Boeing/TRW/Lockheed-Martin PDRR contract effort for design, fabrication, integration, and testing of the ABL weapon system, including design and development of the SIL at the Birk Flight Test Facility at Edwards AFB, CA</p> <p>(U) \$5,577 Continue support for special studies, simulations and analyses, technical support, risk management, and an independent review team specializing in lasers, aircraft, and aircraft integration</p> <p>(U) \$23,089 Continue support for labor, training, environmental studies, IPT participation, purchase of targets as GFP, and other government agency support requirements.</p> <p>(U) \$386,130 Total</p> <p>(U) <u>FY 2002 (\$ in Thousands)</u></p> <p>(U) \$0 All FY02 and outyear funding for ABL were transferred to BMDO per OSD direction.</p> <p>(U) \$0 Total</p>									
Project 4269			Page 1 of 5 Pages				Exhibit R-2 (PE 0603319F)		

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 2002																																																							
BUDGET ACTIVITY 04 - Demonstration and Validation	PE NUMBER AND TITLE 0603319F Airborne Laser Technology	PROJECT 4269																																																							
<p>(U) <u>A. Mission Description Continued</u></p> <p>(U) <u>FY 2003 (\$ in Thousands)</u></p> <p>(U) \$0 No Activity</p> <p>(U) \$0 Total</p> <p>(U) <u>B. Budget Activity Justification</u></p> <p>This program is in budget activity 4 (BAC-4) - Demonstration and Validation; ABL is a major defense acquisition program and was authorized to enter PDRR at Milestone I in November 1996.</p> <p>(U) <u>C. Program Change Summary (\$ in Thousands)</u></p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;"></th> <th style="width: 10%; text-align: center;"><u>FY 2001</u></th> <th style="width: 10%; text-align: center;"><u>FY 2002</u></th> <th style="width: 10%; text-align: center;"><u>FY 2003</u></th> <th style="width: 10%; text-align: center;"><u>Total Cost</u></th> </tr> </thead> <tbody> <tr> <td>(U) Previous President's Budget</td> <td style="text-align: right;">148,637</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">TBD</td> </tr> <tr> <td>(U) Appropriated Value</td> <td style="text-align: right;">233,637</td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Appropriated Value</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> a. Congressional/General Reductions</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> b. Small Business Innovative Research</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> c. Omnibus or Other Above Threshold Reprogram</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> d. Below Threshold Reprogram</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> e. Rescissions</td> <td style="text-align: right;">-507</td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Budget Years Since FY 2002 PBR</td> <td style="text-align: right;">153,000</td> <td style="text-align: center;">0</td> <td></td> <td></td> </tr> <tr> <td>(U) Current Budget Submit/FY 2003 PBR</td> <td style="text-align: right;">386,130</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">TBD</td> </tr> </tbody> </table> <p>(U) <u>Significant Program Changes:</u></p> <p>Congress added \$85.0 million to the FY01 appropriation. Congress added an additional \$153M in FY01 funds as part of a supplemental appropriation. As a result of OSD direction, all FY02 and outyear funding for ABL were transferred to the Ballistic Missile Defense Organization (BMDO).</p> <p>Note: Quantity of RDT&E articles total includes purchase of a commercial 747-400F aircraft for the Program Definition and Risk Reduction (PDRR) phase only. The PDRR commercial 747-400F aircraft was purchased in FY1998 and was delivered in January 2000.</p>				<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Total Cost</u>	(U) Previous President's Budget	148,637	0	0	TBD	(U) Appropriated Value	233,637				(U) Adjustments to Appropriated Value					a. Congressional/General Reductions					b. Small Business Innovative Research					c. Omnibus or Other Above Threshold Reprogram					d. Below Threshold Reprogram					e. Rescissions	-507				(U) Adjustments to Budget Years Since FY 2002 PBR	153,000	0			(U) Current Budget Submit/FY 2003 PBR	386,130	0	0	TBD
	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Total Cost</u>																																																					
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Project 4269	Page 2 of 5 Pages	Exhibit R-2 (PE 0603319F)																																																							

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)							DATE February 2002		
BUDGET ACTIVITY 04 - Demonstration and Validation				PE NUMBER AND TITLE 0603319F Airborne Laser Technology			PROJECT 4269		
(U) D. Other Program Funding Summary (\$ in Thousands)									
	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U)	AF RDT&E								
(U)	Other APPN								
	Note 1 -Beginning in FY02 all ABL outyear funding was transferred to the Ballistic Missile Defense Organization (BMDO) per OSD direction. The specific PEs are still being determined.								
	Note 2 - PE 0603605F, Advanced Weapons - supports ABL by developing technologies for potential performance enhancements above current requirements identified in ABL Operational Requirements Document (ORD).								
(U) E. Acquisition Strategy									
	Milestone (MS) I decision was November 1996 authorizing entry into PDRR. MS II for EMD is projected in FY 2004; MS III decision for Production is projected for FY 2008. The PDRR program is structured to demonstrate technical risk reduction achievements at key junctures throughout the PDRR phase. The Air Force established reviews of the program at two key points: Authority-to-Proceed I and II (ATP-1 and ATP-2, respectively) during PDRR to ensure planned progress is attained. ABL successfully completed ATP-1 on 26 Jun 98. The acquisition strategy is being reviewed by BMDO with OSD and the Air Force								
(U) F. Schedule Profile									
		<u>FY 2001</u>			<u>FY 2002</u>		<u>FY 2003</u>		
		1	2	3	4	1	2	3	4
(U)	Virtual ABL Facility Surveillance/Tracking Test		*						
(U)	Turret Window Fabrication Complete			*					
(U)	Laser Module Airworthiness Test					X			
(U)	Aircraft Modifications Complete					X			
	* = Completed Event								
	X = Planned Event								
	As a result of OSD direction, all FY02 and outyear funding for ABL were transferred to the Ballistic Missile Defense Organization (BMDO).								
Project 4269			Page 3 of 5 Pages			Exhibit R-2 (PE 0603319F)			

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2002			
BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT		
04 - Demonstration and Validation				0603319F Airborne Laser Technology				4269		
(U) A. Project Cost Breakdown (\$ in Thousands)										
						<u>FY 2001</u>		<u>FY 2002</u>		<u>FY 2003</u>
(U)	Major Contracts (PDRR contract and Concept Design)					357,464		0		
(U)	Support Contracts (Technical Support, Analysis)					5,577		0		
(U)	Test/Other Government/Misc Support/Salaries/IPTs					23,089		0		
(U)	Total					386,130		0		
Congress added \$85.0 million to the FY01 appropriation. Congress added an additional \$153.0 million in FY01 funds as part of a supplemental appropriation. Beginning in FY02 all ABL FY02 and outyear funding were transferred to the Ballistic Missile Defense Organization (BMDO) per OSD direction.										
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)										
(U) Performing Organizations:										
<u>Contractor or Government</u>	<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Performing Activity</u>	<u>Project Office</u>	<u>Total Prior to FY 2001</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Performing Activity</u>	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>						
<u>Product Development Organizations</u>										
Boeing Defense & Space Group Seattle, WA	CPAF	12 Nov 96	TBD	TBD	705,936	357,717	0			1,063,653
Concept Design Contract (Rockwell International, CA)	CPFF	9 May 94	22,071	22,071	22,071	0	0			22,071
Concept Design Contract (Boeing Defense & Space Group, WA)	CPFF	9 May 94	21,689	21,689	21,689	0	0			21,689
Note - The Performing Activity EAC is TBD pending contractor input.										
<u>Support and Management Organizations</u>										
Technical Support Contracts	Various	Varies	N/A	N/A	25,605	5,324	0			30,929
Government In-House and Other External Support	Various	Varies	N/A	N/A	58,537	18,464	0			77,001
Project 4269			Page 4 of 5 Pages				Exhibit R-3 (PE 0603319F)			

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE	
BUDGET ACTIVITY							PROJECT	
04 - Demonstration and Validation							0603319F Airborne Laser Technology	
							4269	
(U) <u>Performing Organizations Continued:</u>								
<u>Test and Evaluation Organizations</u>								
Air Force Flight Test Center	MIPR	Varies	N/A	N/A	4,159	4,625	0	8,784
(AFFTC)								
Beginning in FY02 all ABL FY02 and outyear funding were transferred to the Ballistic Missile Defense Organization (BMDO) per OSD direction.								
(U) <u>Government Furnished Property:</u>								
<u>Contract</u>								
<u>Method/Type</u> <u>Award or</u>								
<u>Item</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Delivery</u>		<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>
<u>Description</u>	<u>Vehicle</u>	<u>Date</u>	<u>Date</u>		<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>
<u>Product Development Property</u>								
The government is providing miscellaneous support equipment during the test phase of the PDRR program. In addition, the government is also providing hardware items to facilitate Infrared Search and Track (IRST) tests. The costs of these two categories of GFP fall below the \$1M reporting threshold.								
<u>Support and Management Property</u>								
<u>Test and Evaluation Property</u>								
					<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>
					<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>
<u>Subtotals</u>								<u>Budget to</u>
								<u>Complete</u>
								<u>Total</u>
Subtotal Product Development					749,696	357,717	0	1,107,413
Subtotal Support and Management					84,142	23,788	0	107,930
Subtotal Test and Evaluation					4,159	4,625	0	8,784
Total Project					837,997	386,130	0	1,224,127
Beginning in FY02 all ABL FY02 and outyear funding were transferred to the Ballistic Missile Defense Organization (BMDO) per OSD direction.								

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 2002
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BUDGET ACTIVITY 04 - Demonstration and Validation	PE NUMBER AND TITLE 0603421F GLOBAL POSITIONING SYSTEM	PROJECT 4993
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COST (\$ in Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
4993 GPS BLOCK III	0	76,960	100,217	183,767	186,960	211,877	203,641	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0

(U) A. Mission Description

Note: In FY02, PE 0603421F efforts were transferred from PE 0305165F.

NAVSTAR Global Positioning System (GPS) is a space-based radio positioning, navigation, and time (PNT) distribution system. This Program Element (PE) funds the Research and Development (R&D) for GPS Block III. This includes, but is not limited to, advanced concept development, systems engineering and analysis, satellite systems development, the study of augmentation systems with the potential of hosting the GPS PNT system on multi-mission service satellites [such as the Global Multi-Mission Service Platform (GMSP)], control systems development, user equipment interfaces, training simulators, Integrated Logistics Support (ILS) products, and developmental test resources.

Funds will support engineering studies and analyses, architectural engineering studies, trade studies, systems engineering, development, test and evaluation efforts, and mission operations in support of upgrades and product improvements for military and civil applications necessary to support efforts to protect U.S. military and allies' use of GPS.

GPS Modernization Stewardship funds efforts which are of a national scale, joint civil-military in nature, and benefit two or more agencies.

(U) FY 2001 (\$ in Thousands)

(U) \$0 No Activity--Work performed in PE 0305165F

(U) \$0 Total

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 2002			
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT			
04 - Demonstration and Validation	0603421F GLOBAL POSITIONING SYSTEM	4993			
(U) <u>A. Mission Description Continued</u>					
(U) <u>FY 2002 (\$ in Thousands)</u>					
(U) \$4,700	GPS Modernization Stewardship				
(U) \$3,691	JPO Support for GPS III/Modernization				
(U) \$68,569	GPS III/Modernization Development				
(U) \$76,960	Total				
(U) <u>FY 2003 (\$ in Thousands)</u>					
(U) \$4,600	GPS Modernization Stewardship				
(U) \$4,121	JPO Support for GPS III/Modernization				
(U) \$91,496	GPS III/Modernization Development				
(U) \$100,217	Total				
(U) <u>B. Budget Activity Justification</u>					
This program is Budget Activity 4 - Concept & Technology Development because it is a pre-milestone B effort					
(U) <u>C. Program Change Summary (\$ in Thousands)</u>					
		<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Total Cost</u>
(U) Previous President's Budget		0	78,358	100,575	TBD
(U) Appropriated Value		0	78,358		
(U) Adjustments to Appropriated Value					
a. Congressional/General Reductions			-1,398		
b. Small Business Innovative Research					
c. Omnibus or Other Above Threshold Reprogram					
d. Below Threshold Reprogram					
e. Rescissions					
(U) Adjustments to Budget Years Since FY 2002 PBR				-358	
(U) Current Budget Submit/FY 2003 PBR		0	76,960	100,217	TBD
(U) <u>Significant Program Changes:</u>					

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 2002	
BUDGET ACTIVITY 04 - Demonstration and Validation				PE NUMBER AND TITLE 0603421F GLOBAL POSITIONING SYSTEM				PROJECT 4993	
(U) D. Other Program Funding Summary (\$ in Thousands)									
	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E	0	0	0	0	0	0	0	0	0
(U) Related RDT&E:									
(U) PE 0305165F NAVSTAR GPS (Space & Ground)	241,163	178,655	324,098	174,163	99,415	106,183	80,093	Continuing	TBD
(U) PE 0305164F NAVSTAR GPS (User Equip)	60,330	52,541	86,799	60,981	61,595	64,415	70,062	Continuing	
(U) Other APPN None									
(U) E. Acquisition Strategy									
<p>In Nov 00, GPS III awarded one-year contracts to Boeing and Lockheed Martin for \$16M each. Both companies completed the System Architecture and Requirements Definition (SA/RD) studies to survey GPS user needs, develop feasible concepts to address those needs, and provide lifecycle cost estimates associated with achieving various levels of needs satisfaction. Efforts accomplished prior to FY02 are included in PE 0305165F. During FY01, changes were initiated in DoD space acquisition process and GPS III was selected as the pathfinder for the new process. As a result, the next phase is termed Pre-Acquisition (pre-Milestone B, similar to Component Advanced Development) and will follow a successful Key Decision Point B (KDP-B) in FY02 prior to a KDP-C (similar to a combined Milestone A/B) Review in FY04. The GPS JPO plans to release an RFP to conduct a 'Full and Open Competition' with award to two qualified bidders. The subsequent competition, after KDP-C, will award a single Acquisition & Operations contract that includes production options. There will be an Under Secretary of the Air Force (USecAF) review prior to exercising any production options on this contract. The GPS JPO is actively exploring options to accelerate the anti-jam capabilities provided by higher power PNT signals. Additionally, if approved, the GPS III may plan to host the GPS PNT system on multi-mission satellites [such as the Global Multi-Mission Service Platform (GMSP)].</p>									
(U) F. Schedule Profile									
				<u>FY 2001</u>		<u>FY 2002</u>		<u>FY 2003</u>	

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE February 2002		
BUDGET ACTIVITY					PE NUMBER AND TITLE					PROJECT		
04 - Demonstration and Validation					0603421F GLOBAL POSITIONING SYSTEM					4993		
(U) <u>F. Schedule Profile Continued</u>												
		<u>FY 2001</u>				<u>FY 2002</u>				<u>FY 2003</u>		
	1	2	3	4	1	2	3	4	1	2	3	4
(U) SA/RD Contract Completion					*							
(U) GPS III Defense Space Acquisition Board (DSAB)						X						
(U) Pre-Acquisition Contract Awards							X					
(U) System Requirements Review										X		
(U) System Design Review												X
* = Completed Event, X = Scheduled Event												
Project 4993			Page 4 of 6 Pages			Exhibit R-2 (PE 0603421F)						

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)								DATE February 2002		
BUDGET ACTIVITY 04 - Demonstration and Validation				PE NUMBER AND TITLE 0603421F GLOBAL POSITIONING SYSTEM				PROJECT 4993		
(U) A. Project Cost Breakdown (\$ in Thousands)										
						<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>		
(U)	GPS III/Modernization Development					0	68,569	91,496		
(U)	JPO Support for GPS III/ Modernization					0	3,691	4,121		
(U)	GPS Modernization Stewardship					0	4,700	4,600		
(U)	Total					0	76,960	100,217		
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)										
(U) Performing Organizations:										
<u>Contractor or</u>	<u>Contract</u>									
<u>Government</u>	<u>Method/Type</u>	<u>Award or</u>	<u>Performing</u>	<u>Project</u>						
<u>Performing</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Activity</u>	<u>Office</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Activity</u>	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>	<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Complete</u>	<u>Program</u>
<u>Product Development Organizations</u>										
TBD	CPAF	Jun 02			0	0	15,389	32,136	Continuing	TBD
TBD	CPAF	Jun 02	N/A		0	0	15,389	32,136	Continuing	TBD
GPS III/Modernization	Various				0	0	37,791	27,224	Continuing	TBD
System Engineering & Technical Support										
<u>Support and Management Organizations</u>										
JPO Support for GPS III /	Various				0	0	3,691	4,121	Continuing	TBD
Modernization										
GPS Modernization	Various		N/A	N/A	0	0	4,700	4,600	Continuing	TBD
Stewardship										
<u>Test and Evaluation Organizations</u>										

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)					DATE February 2002	
BUDGET ACTIVITY		PE NUMBER AND TITLE			PROJECT	
04 - Demonstration and Validation		0603421F GLOBAL POSITIONING SYSTEM			4993	
		<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>
		<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Complete</u>
						<u>Program</u>
<u>Subtotals</u>						
Subtotal Product Development		0	0	68,569	91,496	TBD
Subtotal Support and Management		0	0	8,391	8,721	TBD
Subtotal Test and Evaluation						
Total Project		0	0	76,960	100,217	TBD

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 2002
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BUDGET ACTIVITY 04 - Demonstration and Validation	PE NUMBER AND TITLE 0603430F Advanced (EHF MILSATCOM (Space))	PROJECT 4050
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COST (\$ in Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
4050 Advanced MILSATCOM	229,763	479,659	825,783	617,688	538,196	216,779	160,318	504,629	3,837,743
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	2

Note: In FY03, the Advanced Extremely High Frequency program anticipates receiving \$19.0M from the Cost of War Transfer Account. These funds are not included in the FY03 Air Force baseline. Funding will be used to complete manufacturing development and qualify several families of new radiation-hardened parts to be used by all USAF programs.

(U) A. Mission Description

Develop and acquire Advanced Extremely High Frequency (EHF) Military Satellite Communications (MILSATCOM) satellites and cryptography with necessary modifications to the mission control segment for survivable, anti-jam, worldwide, secure communications for the strategic and tactical warfighter. Advanced EHF (AEHF) satellites will replenish the existing EHF system (Milstar) at much higher capacity and data rate capability with decreased launch costs. This program focuses on utilizing commercial technology to the maximum extent possible and will ensure technology development is sufficient for a medium launch lift vehicle. On 10 October 2001, a milestone B decision was approved by the Defense Acquisition Executive to enter the System Development and Demonstration phase. The program is a sole source acquisition to a contractor team comprised of Lockheed Martin (prime integrator) and TRW (provider of satellite payload). Satellites 1 and 2 will be funded with RDT&E funds and satellite 3 will be funded with procurement funds. AEHF is a cooperative program that includes three international partners: Canada, the United Kingdom, and The Netherlands

(U) FY 2001 (\$ in Thousands)

- (U) \$187,327 Completed System Definition**
- (U) \$17,602 Continued Satellite Cryptographic Development**
- (U) \$21,416 Continued Program Office Support -Transition of Advanced EHF MILSATCOM Joint Program Office Support from Milstar PE 64479F**
- (U) \$3,418 Continued Joint Terminal Engineering Office (JTEO) Support**
- (U) \$229,763 Total**

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 2002			
BUDGET ACTIVITY		PE NUMBER AND TITLE		PROJECT	
04 - Demonstration and Validation		0603430F Advanced (EHF MILSATCOM (Space))		4050	
(U) <u>A. Mission Description Continued</u>					
(U) <u>FY 2002 (\$ in Thousands)</u>					
(U)	\$420,468	Begin SDD (design and parts) of the AEHF satellites and Mission Control Segment (MCS) and begin build of satellite 1, satellite 2, and the MCS			
(U)	\$30,745	Continue Satellite Cryptographic Development			
(U)	\$25,000	Continue AEHF Program Office Support Activities			
(U)	\$3,446	Continue JTEO Support			
(U)	\$479,659	Total			
(U) <u>FY 2003 (\$ in Thousands)</u>					
(U)	\$777,353	Continue SDD of the AEHF satellites and MCS and begin build of satellites 1 & 2 and the MCS			
(U)	\$19,430	Continue Satellite Cryptographic Development			
(U)	\$25,500	Continue AEHF Program Office Support Activities			
(U)	\$3,500	Continue JTEO Support			
(U)	\$825,783	Total			
(U) <u>B. Budget Activity Justification</u>					
This program is in Budget Activity 4, Research Category Demonstration and Validation, since it funds Advanced EHF technology validation and modeling.					
(U) <u>C. Program Change Summary (\$ in Thousands)</u>					
		<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Total Cost</u>
(U)	Previous President's Budget	246,396	549,659	516,866	2,495,588
(U)	Appropriated Value	246,396	479,659		
(U)	Adjustments to Appropriated Value				
	a. Congressional/General Reductions	-2,260			
	b. Small Business Innovative Research	-8,131			
	c. Omnibus or Other Above Threshold Reprogram				
	d. Below Threshold Reprogram	-6,242			
	e. Rescissions				
(U)	Adjustments to Budget Years Since FY 2002 PBR			308,917	
(U)	Current Budget Submit/FY 2003 PBR	229,763	479,659	825,783	3,837,743
Project 4050		Page 2 of 5 Pages		Exhibit R-2 (PE 0603430F)	

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)							DATE February 2002			
BUDGET ACTIVITY 04 - Demonstration and Validation				PE NUMBER AND TITLE 0603430F Advanced (EHF MILSATCOM (Space))				PROJECT 4050		
(U) <u>C. Program Change Summary (\$ in Thousands) Continued</u>										
(U) <u>Significant Program Changes:</u> FY03 funding increased to facilitate revised MS B acquisition strategy. Milestone B planning disclosed program cost increases above funding availability due to requirements growth. SecAF approved additional funding for Sats 1 and 2 and ground segment in the FYDP. SDD contract awarded in first quarter FY02										
(U) <u>D. Other Program Funding Summary (\$ in Thousands)</u>										
	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>	
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>		
(U) Related Proc:										
(U) MPAF, PE 0303604F, Advanced EHF	0	0	94,523	389,985	0	0	0	753,115	1,237,623	
(U) OPAF, PE 03033600F Wideband Gapfiller System, Project #836780, CCS-C	0	0	5,597	8,357	2,204			0	16,158	
(U) <u>E. Acquisition Strategy</u> The Advanced MILSATCOM also known as the Advanced EHF (AEHF) program is a sole source acquisition to a contractor team comprised of Lockheed Martin (prime integrator) and TRW (provider of the satellite payload). This team will perform the System Development and Demonstration (SD&D) of three satellites under a firm fixed price contract and associated mission command and control ground capabilities under a Cost Plus Award Fee line item on the contract. AEHF will incorporate lessons learned and improvements from Milstar and commercial SATCOM practices into the next generation EHF secure, anti-jam military communication satellite system.										
(U) <u>F. Schedule Profile</u>										
			<u>FY 2001</u>			<u>FY 2002</u>		<u>FY 2003</u>		
			1	2	3	4	1	2	3	
(U) Milestone B - DAB							*			
(U) Award SDD Contract							*			
(U) Satellite Cryptographic Completion (FY04)										
(U) System CDR									X	
(U) First Launch - (FY06)										
* = Completed Event X = Planned Event										
Project 4050			Page 3 of 5 Pages				Exhibit R-2 (PE 0603430F)			

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2002			
BUDGET ACTIVITY					PE NUMBER AND TITLE			PROJECT		
04 - Demonstration and Validation					0603430F Advanced (EHF MILSATCOM (Space))			4050		
(U) A. Project Cost Breakdown (\$ in Thousands)										
						<u>FY 2001</u>		<u>FY 2002</u>		<u>FY 2003</u>
(U)	MILSATCOM Technology Validation Program					0				
(U)	Processing Subsystem Engineering Model					0				
(U)	Program Office Support					21,416		25,000		25,500
(U)	System Definition					187,327		0		
(U)	Cryptographic Development					17,602		30,745		19,430
(U)	Satellite SDD							420,468		777,353
(U)	Joint Terminal Engineering Office (JTEO)					3,418		3,446		3,500
(U)	Total					229,763		479,659		825,783
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)										
(U) Performing Organizations:										
<u>Contractor or Government</u>	<u>Contract Method/Type</u>	<u>Award or Obligation Date</u>	<u>Performing Activity EAC</u>	<u>Project Office EAC</u>	<u>Total Prior to FY 2001</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Product Development Organizations</u>										
NSA	MIPR	Dec 99	96,542	96,542	17,090	17,602	30,745	19,430	11,675	96,542
JTEO	PR	Continuing	94,114	94,114	5,216	3,418	3,446	3,500	78,534	94,114
MIT/LL	MIPR	Feb 95	4,988	4,988	4,988	0	0	0	0	4,988
Hughes	CPFF	May 97	67,175	67,175	67,175	0	0	0	0	67,175
TRW	CPFF	May 97	62,083	62,083	62,083	0	0	0	0	62,083
Various	Various	95-01	N/A	N/A	66,659	0	0	0	0	66,659
Lockheed Martin	FFP	Oct 00	225,011	225,011	37,684	187,327	0	0	0	225,011
Hughes	FFP	Oct 00	0	0	0	0	0	0	0	0
SDD Contractor (Contractor Team)	TBD	Aug 01	3,070,178	3,070,178	0	0	420,468	777,353	1,872,357	3,070,178

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE February 2002
BUDGET ACTIVITY					PE NUMBER AND TITLE					PROJECT
04 - Demonstration and Validation					0603430F Advanced (EHF MILSATCOM (Space)					4050
(U) Performing Organizations Continued:										
<u>Support and Management Organizations</u>										
Various	Various	Continuing	N/A	N/A	4,033	21,416	25,000	25,500	75,044	150,993
<u>Test and Evaluation Organizations</u>										
(U) Government Furnished Property:										
	<u>Contract</u>									
	<u>Method/Type</u>	<u>Award or</u>								
<u>Item</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Delivery</u>		<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Description</u>	<u>Vehicle</u>	<u>Date</u>	<u>Date</u>		<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Complete</u>	<u>Program</u>
<u>Product Development Property</u>										
None										
<u>Support and Management Property</u>										
None										
<u>Test and Evaluation Property</u>										
None										
					<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Subtotals</u>					<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Complete</u>	<u>Program</u>
Subtotal Product Development					260,895	208,347	454,659	800,283	1,962,566	3,686,750
Subtotal Support and Management					4,033	21,416	25,000	25,500	75,044	150,993
Subtotal Test and Evaluation										
Total Project					264,928	229,763	479,659	825,783	2,037,610	3,837,743

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 2002	
BUDGET ACTIVITY 04 - Demonstration and Validation				PE NUMBER AND TITLE 0603432F Polar MILSATCOM (Space)					
COST (\$ in Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	29,229	18,539	19,554	80,683	220,973	200,000	125,000	600,000	1,515,051
4052 Polar Satellite Communications	29,229	18,539	9,577	5,717	981	0	0	0	285,116
A005 National Strategic SATCOM System (NSSS)	0	0	9,977	74,966	219,992	200,000	125,000	600,000	1,229,935
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0

Note: New start effort: 0603432F, Polar MILSATCOM (Space), Project A005, National Strategic SATCOM System (NSSS), in order to acquire the follow-on, next generation, Polar MILSATCOM system (which will also be the follow-on, next generation Advanced EHF MILSATCOM system).

(U) **A. Mission Description**
 This program element will acquire satellite communications (SATCOM) systems to assure national and strategic warfighters maintain command and control during all levels of conflict (including nuclear) in both mid latitude and polar regions.

Polar Satellite Communications is funding scaled-down Milstar packages integrated into 3 classified host satellites as an expedited, interim solution to requirements for assured connectivity in the north polar region.

NSSS will provide next generation nuclear protected SATCOM as the follow-on to both the interim Polar SATCOM program and the Advanced EHF program (that follows Milstar).

(U) **B. Budget Activity Justification**
 The Polar MILSATCOM program is in Budget Activity 4, Demonstration and Validation, based on the 30 Mar 95 USD(A&T) memorandum to pursue the interim hosted solution (Interim Polar). The NSSS project is being defined as the next generation strategic MILSATCOM system.

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE			
BUDGET ACTIVITY		PE NUMBER AND TITLE			
04 - Demonstration and Validation		0603432F Polar MILSATCOM (Space)			
(U) <u>C. Program Change Summary (\$ in Thousands)</u>					
		<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Total Cost</u>
(U)	Previous President's Budget	25,829	18,724	9,588	281,919
(U)	Appropriated Value	26,068	18,724		
(U)	Adjustments to Appropriated Value				
	a. Congressional/General Reductions	-182	-185		
	b. Small Business Innovative Research				
	c. Omnibus or Other Above Threshold Reprogram				
	d. Below Threshold Reprogram	3,400			
	e. Rescissions	-57			
(U)	Adjustments to Budget Years Since FY 2002 PBR			9,966	
(U)	Current Budget Submit/FY 2003 PBR	29,229	18,539	19,554	1,515,051
(U) <u>Significant Program Changes:</u>					
(U) FY01 Polar Satellite Comm: Increased funding (\$3,400) for program cost growth at classified host program office.					
(U) FY03-07: New project added - NSSS (\$9,977 in FY03, \$629,935 total across FYDP)					

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)								DATE February 2002																					
BUDGET ACTIVITY 04 - Demonstration and Validation				PE NUMBER AND TITLE 0603432F Polar MILSATCOM (Space)				PROJECT 4052																					
COST (\$ in Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost																				
4052 Polar Satellite Communications	29,229	18,539	9,577	5,717	981	0	0	0	285,116																				
<p>(U) <u>A. Mission Description</u> Polar MILSATCOM is acquiring protected communications services as an adjunct to Milstar for warfighters operating in the northern polar region. The JROC approved 1995 ORD contains a subset of requirements that required expedited solution. The current expedited program, sometimes called Interim Polar, integrates small Milstar-compatible packages on 3 classified host satellites to provide limited requirements satisfaction while a long term solution is pursued. The first hosted package was launched in Nov 97, the last two will be available in FY03 and FY06. Acquisition of the long term solution will be part of the National and Strategic SATCOM System (NSSS) project just added to this PE.</p> <p>(U) <u>FY 2001 (\$ in Thousands)</u> (U) \$29,229 Continued payload development and integration development with host vehicle for Interim Polar packages 2 and 3. (Through the classified host contract) (U) \$29,229 Total</p> <p>(U) <u>FY 2002 (\$ in Thousands)</u> (U) \$18,539 Assemble payload and integrate with host vehicle for Interim Polar packages 2 and 3. (Through the classified host contract) (U) \$18,539 Total</p> <p>(U) <u>FY 2003 (\$ in Thousands)</u> (U) \$9,577 Assemble payload and integrate with host vehicle for Interim Polar packages 2 and 3. (Through the classified host contract) (U) \$9,577 Total</p> <p>(U) <u>B. Project Change Summary</u></p> <p>(U) <u>C. Other Program Funding Summary (\$ in Thousands)</u></p> <table style="width:100%; border-collapse: collapse;"> <tr> <td></td> <td style="text-align: center;"><u>FY 2001</u></td> <td style="text-align: center;"><u>FY 2002</u></td> <td style="text-align: center;"><u>FY 2003</u></td> <td style="text-align: center;"><u>FY 2004</u></td> <td style="text-align: center;"><u>FY 2005</u></td> <td style="text-align: center;"><u>FY 2006</u></td> <td style="text-align: center;"><u>FY 2007</u></td> <td style="text-align: center;"><u>Cost to</u></td> <td style="text-align: center;"><u>Total Cost</u></td> </tr> <tr> <td></td> <td style="text-align: center;"><u>Actual</u></td> <td style="text-align: center;"><u>Estimate</u></td> <td style="text-align: center;"><u>Complete</u></td> <td></td> </tr> </table> <p>(U) None. The Navy has used its own PE(s) to modify control systems and terminals to work with Interim Polar.</p>											<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>		<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>																				
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>																					
Project 4052			Page 3 of 9 Pages				Exhibit R-2A (PE 0603432F)																						

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)							DATE February 2002																																							
BUDGET ACTIVITY 04 - Demonstration and Validation				PE NUMBER AND TITLE 0603432F Polar MILSATCOM (Space)				PROJECT 4052																																						
<p>(U) <u>D. Acquisition Strategy</u> The Air Force provides funds to the classified host program office to modify the host satellite system contract to include the Polar EHF package. The host program office has total acquisition responsibility for Interim Polar.</p> <p>(U) <u>E. Schedule Profile</u></p> <table style="width:100%; border: none;"> <thead> <tr> <th style="width: 40%;"></th> <th colspan="4" style="text-align: center;"><u>FY 2001</u></th> <th colspan="4" style="text-align: center;"><u>FY 2002</u></th> <th colspan="2" style="text-align: center;"><u>FY 2003</u></th> </tr> <tr> <th></th> <th style="text-align: center;">1</th> <th style="text-align: center;">2</th> <th style="text-align: center;">3</th> <th style="text-align: center;">4</th> <th style="text-align: center;">1</th> <th style="text-align: center;">2</th> <th style="text-align: center;">3</th> <th style="text-align: center;">4</th> <th style="text-align: center;">1</th> <th style="text-align: center;">2</th> <th style="text-align: center;">3</th> <th style="text-align: center;">4</th> </tr> </thead> <tbody> <tr> <td>(U) Acquisition activities & dates are classified</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> </tbody> </table> <p>* Completed Event X Planned Event</p>											<u>FY 2001</u>				<u>FY 2002</u>				<u>FY 2003</u>			1	2	3	4	1	2	3	4	1	2	3	4	(U) Acquisition activities & dates are classified												
	<u>FY 2001</u>				<u>FY 2002</u>				<u>FY 2003</u>																																					
	1	2	3	4	1	2	3	4	1	2	3	4																																		
(U) Acquisition activities & dates are classified																																														
Project 4052			Page 4 of 9 Pages				Exhibit R-2A (PE 0603432F)																																							

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2002				
BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT			
04 - Demonstration and Validation				0603432F Polar MILSATCOM (Space)				4052			
(U) A. Project Cost Breakdown (\$ in Thousands)											
						<u>FY 2001</u>		<u>FY 2002</u>		<u>FY 2003</u>	
(U)	Packages 2 & 3 Payload/Integration Development					29,229		18,539		9,577	
(U)	Total					29,229		18,539		9,577	
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)											
(U) Performing Organizations:											
	<u>Contractor or Government Performing Activity</u>	<u>Contract Method/Type or Funding Vehicle</u>	<u>Award or Obligation Date</u>	<u>Performing Activity EAC</u>	<u>Project Office EAC</u>	<u>Total Prior to FY 2001</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Product Development Organizations</u>										
	Classified	Classified	June 95	285,301	285,301	221,073	29,229	18,539	9,577	6,698	285,116
	<u>Support and Management Organizations</u>										
	N/A										
	<u>Test and Evaluation Organizations</u>										
	N/A										
(U) Government Furnished Property:											
	<u>Item Description</u>	<u>Contract Method/Type or Funding Vehicle</u>	<u>Award or Obligation Date</u>	<u>Delivery Date</u>		<u>Total Prior to FY 2001</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Product Development Property</u>										
	N/A										
	<u>Support and Management Property</u>										
	N/A										
	<u>Test and Evaluation Property</u>										
	N/A										
Project 4052				Page 5 of 9 Pages				Exhibit R-3 (PE 0603432F)			

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)					DATE February 2002	
BUDGET ACTIVITY		PE NUMBER AND TITLE			PROJECT	
04 - Demonstration and Validation		0603432F Polar MILSATCOM (Space)			4052	
		<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>
		<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Complete</u>
						<u>Total</u>
	<u>Subtotals</u>					
	Subtotal Product Development	221,073	29,229	18,539	9,577	6,698
	Subtotal Support and Management					
	Subtotal Test and Evaluation					
	Total Project	221,073	29,229	18,539	9,577	6,698
						285,116
						285,116

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	DATE February 2002
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BUDGET ACTIVITY 04 - Demonstration and Validation	PE NUMBER AND TITLE 0603432F Polar MILSATCOM (Space)	PROJECT A005
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COST (\$ in Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
A005 National Strategic SATCOM System (NSSS)	0	0	9,977	74,966	219,992	200,000	125,000	600,000	1,229,935

Note: New start effort: 0603234F, Polar MILSATCOM (Space), Project A005, National Strategic SATCOM System (NSSS), in order to acquire the follow-on, next generation, Polar MILSATCOM system (which will also be the follow-on, next generation, Advanced EHF MILSATCOM system

(U) **A. Mission Description**
 The National and Strategic SATCOM System (NSSS) is a new start program to follow the Polar and Advanced EHF programs. NSSS will provide assured next generation command control for national command authorities and strategic warfighters in all levels of conflict (including nuclear) in both mid latitude and polar regions. NSSS will be nuclear protected. Protected SATCOM capabilities for tactical users (currently provided by the Milstar and AEHF programs) will be perpetuated on Wideband MILSATCOM systems without nuclear hardening, not on the nuclear hardened NSSS.

(U) **FY 2001 (\$ in Thousands)**

(U) \$0 No Activity
 (U) \$0 Total

(U) **FY 2002 (\$ in Thousands)**

(U) \$0 No Activity
 (U) \$0 Total

(U) **FY 2003 (\$ in Thousands)**

(U) \$9,977 Concept Exploration Activities
 (U) \$9,977 Total

(U) **B. Project Change Summary**

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)							DATE February 2002		
BUDGET ACTIVITY 04 - Demonstration and Validation				PE NUMBER AND TITLE 0603432F Polar MILSATCOM (Space)			PROJECT A005		
(U) C. Other Program Funding Summary (\$ in Thousands)									
	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E									
(U) Other APPN									
None at this time. After the Transformational Comm Architecture is finalized, impacts to terminal (e.g., PE 0303601F) and control (e.g., C2 System Consolidated -PE 0603854F) programs will be definitized. Services will acquire their own terminals via Service PEs.									
(U) D. Acquisition Strategy									
Developing strategy during the CY 2002 Transformational Communications Architecture study. Anticipate a competitive development along the lines of Milstar and Advanced EHF programs.									
(U) E. Schedule Profile									
		<u>FY 2001</u>			<u>FY 2002</u>			<u>FY 2003</u>	
		1	2	3	4	1	2	3	4
(U) Transformational Comm Architecture study									
						X	X		
(U) Concept Exploration Contract Award									
								X	
Project A005		Page 8 of 9 Pages				Exhibit R-2A (PE 0603432F)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 2002			
BUDGET ACTIVITY 04 - Demonstration and Validation				PE NUMBER AND TITLE 0603434F National Polar-Orbiting Operational Environmental Satellite System (NPOESS)				PROJECT 4056			
COST (\$ in Thousands)		FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost	
4056	National Polar-orbiting Operational Env. Sat. Syst.	71,032	155,834	237,199	306,532	259,314	239,945	161,712	290,311	1,925,329	
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	2	2	
<p>Notes: Total Cost includes approximately \$203.450M in funds prior to FY01 Quantity of RDT&E articles are based on year of delivery.</p> <p>(U) <u>A. Mission Description</u> Presidential Decision Directive/NSTC-2 (May 1994) directs the Departments of Defense (DoD) and Commerce (DOC) and the National Aeronautics and Space Administration to establish a converged national polar-orbiting weather satellite program. The converged program, the National Polar-orbiting Operational Environmental Satellite System (NPOESS), will combine the follow-on to DoD's Defense Meteorological Satellite Program (DMSP) and the DOC's Polar-orbiting Operational Environmental Satellite (POES) program. A tri-agency Integrated Program Office (IPO) was established on 1 Oct 94 to manage the acquisition and operations of the converged system. NPOESS will provide operational military commanders and civilian leaders timely, quality weather and environmental information to effectively employ weapon systems and protect national resources. The converged program will be the nation's primary source of global weather and environmental data for operational military and civil use. It will provide visible and infrared cloud cover imagery and other atmospheric, oceanographic, terrestrial, and space environmental information. NPOESS will require a combination of satellites in sun synchronous 450 nm polar-orbit at all times (sun synchronous means the satellites cross the equator at the same local sun time on each of their 14 orbits/day). The first two satellites will be incrementally funded with RDT&E funding. The remaining satellites will be fully funded with Missile Procurement funding. NPOESS successfully completed Milestone I on 17 March 1997.</p> <p>(U) <u>FY 2001 (\$ in Thousands)</u></p> <p>(U) \$643 Continued program office support for Program Definition and Risk Reduction (PDRR) efforts.</p> <p>(U) \$24,800 Completed system architecture studies and continue system definition contracts and ground system risk reduction to include competitive contracts between TRW and Lockheed Martin to definitize the NPOESS space and ground segment architectures.</p> <p>(U) \$45,589 Continued critical Visible/Infrared Imager/Radiometer Suite (VIIRS), Conical Microwave Imager/Sounder (CMIS), Crosstrack Infrared Sounder (CrIS), Ozone Mapping and Profiler Suite (OMPS), and Global Positioning System Occultation Sensor (GPSOS) sensor and associated algorithm development efforts and sensor design and fabrication for risk reduction missions.</p> <p>(U) \$71,032 Total</p>											
Project 4056				Page 1 of 7 Pages				Exhibit R-2 (PE 0603434F)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 2002																																								
BUDGET ACTIVITY 04 - Demonstration and Validation	PE NUMBER AND TITLE 0603434F National Polar-Orbiting Operational Environmental Satellite System (NPOESS)	PROJECT 4056																																								
<p>(U) <u>A. Mission Description Continued</u></p> <p>(U) <u>FY 2002 (\$ in Thousands)</u></p> <p>(U) \$920 Continue program office support for PDRR and Engineering and Manufacturing Development (EMD) efforts.</p> <p>(U) \$30,170 Complete system definition contracts and ground system risk reduction to include competitive contracts between TRW and Lockheed Martin to definitize the NPOESS space and ground segment architectures.</p> <p>(U) \$94,744 Transition critical VIIRS, CMIS, CrIS, OMPS, and GPSOS sensor and associated algorithm development efforts and sensor design and fabrication for risk reduction missions to EMD/Production contract.</p> <p>(U) \$30,000 Initiate System Engineering and Manufacturing Development effort including sensor and associated algorithm development, design and fabrication.</p> <p>(U) \$155,834 Total</p> <p>(U) <u>FY 2003 (\$ in Thousands)</u></p> <p>(U) \$682 Continue program office support for EMD efforts.</p> <p>(U) \$236,517 Continue System Engineering and Manufacturing Development effort including sensor and associated algorithm development, design and fabrication.</p> <p>(U) \$237,199 Total</p> <p>(U) <u>B. Budget Activity Justification</u> This PE is in Budget Activity 4 (Demonstration and Validation) because it currently supports sensor and satellite bus development prior to a milestone B/C decision.</p> <p>(U) <u>C. Program Change Summary (\$ in Thousands)</u></p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;"></th> <th style="width: 10%; text-align: center;"><u>FY 2001</u></th> <th style="width: 10%; text-align: center;"><u>FY 2002</u></th> <th style="width: 10%; text-align: center;"><u>FY 2003</u></th> <th style="width: 10%; text-align: center;"><u>Total Cost</u></th> </tr> </thead> <tbody> <tr> <td>(U) Previous President's Budget</td> <td style="text-align: center;">75,950</td> <td style="text-align: center;">157,394</td> <td style="text-align: center;">238,038</td> <td style="text-align: center;">1,930,461</td> </tr> <tr> <td>(U) Appropriated Value</td> <td style="text-align: center;">71,032</td> <td style="text-align: center;">157,394</td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Appropriated Value</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td style="padding-left: 20px;">a. Congressional/General Reductions</td> <td></td> <td style="text-align: center;">-1,560</td> <td></td> <td></td> </tr> <tr> <td style="padding-left: 20px;">b. Small Business Innovative Research</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td style="padding-left: 20px;">c. Omnibus or Other Above Threshold Reprogram</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td style="padding-left: 20px;">d. Below Threshold Reprogram</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>				<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Total Cost</u>	(U) Previous President's Budget	75,950	157,394	238,038	1,930,461	(U) Appropriated Value	71,032	157,394			(U) Adjustments to Appropriated Value					a. Congressional/General Reductions		-1,560			b. Small Business Innovative Research					c. Omnibus or Other Above Threshold Reprogram					d. Below Threshold Reprogram				
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Project 4056	Page 2 of 7 Pages	Exhibit R-2 (PE 0603434F)																																								

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)							DATE February 2002		
BUDGET ACTIVITY			PE NUMBER AND TITLE				PROJECT		
04 - Demonstration and Validation			0603434F National Polar-Orbiting Operational Environmental Satellite System (NPOESS)				4056		
(U) C. Program Change Summary (\$ in Thousands) Continued									
			<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Total Cost</u>			
e. Rescissions									
(U)	Adjustments to Budget Years Since FY 2002 PBR				-839	-5,132			
(U)	Current Budget Submit/FY 2003 PBR		71,032	155,834	237,199	1,925,329			
<u>Significant Program Changes:</u>									
(U) D. Other Program Funding Summary (\$ in Thousands)									
		<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Total Cost</u>
		<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>
(U)	Related NOAA PAC Funding:	73,164	157,394	237,250	302,900	285,900	312,050	328,100	1,391,000
	Polar Convergence*								
(U)	Related NPOESS MPAF:				33,917	0	163,494	279,190	476,601
	PE0305178F								
(U)	Related EELV MPAF:					75,000	0	375,000	450,000
	PE0305953F**								
(U)	Other operations and sustainment funding***							399,535	399,535
<p>* National Oceanic and Atmospheric Administration Procurement, Acquisition, and Construction (NOAA PAC) appropriation. The Air Force (DoD) and NOAA (DoC) fund NPOESS 50/50. Total cost includes prior-year amount of \$199.272M. Total NPOESS program cost is the sum of NPOESS RDT&E AF 0603434F, MPAF 0305178F, NPOESS portion of Evolved Expendable Launch Vehicle (EELV) MPAF 0305953F, and Polar Convergence NOAA PAC. The actual share of funding for specific program expenses is determined in the year of execution based on the availability of DoD and DOC funds.</p> <p>** NPOESS Launch vehicle funding is budgeted entirely in EELV PE 0305953F, and represents a portion of the DoD's 50% funding contribution in specific given years.</p> <p>*** Operations and sustainment (O&S) after Initial Operational Capability (IOC) may be funded as either Operations & Maintenance AF, NOAA Operations Research and Facilities (ORF) or other appropriations depending on the concept selected for post IOC O&S. Prior to IOC, O&S funding will be through a combination of RDT&E (AF) and NOAA PAC. These funds will be transferred to the specific appropriation as the budget enters the FYDP.</p>									
Project 4056			Page 3 of 7 Pages			Exhibit R-2 (PE 0603434F)			

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 2002
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BUDGET ACTIVITY 04 - Demonstration and Validation	PE NUMBER AND TITLE 0603434F National Polar-Orbiting Operational Environmental Satellite System (NPOESS)	PROJECT 4056
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(U) E. Acquisition Strategy

The guiding tenets for NPOESS acquisition include accomplishing substantial risk reduction with a focus on payload development, enhancing data utility to users, deferring major system decisions as long as reasonable, and protecting maximum flexibility to ensure the best overall system design. The program pursues a significant investment in the development and on-orbit testing of selected payload sensors while deferring individual sensor selections among competing international, NASA, military, and industry alternatives to assess and determine the optimum technical performance potential of each candidate sensor. NPOESS is currently pursuing two missions to reduce sensor development and data user segment risk. The Wind Sat/Coriolis mission will prove technologies to be used for the NPOESS Conical-Scanning Microwave Imager/Sounder (CMIS) sensor. The NPOESS Preparatory Project will fly and test-out three of NPOESS's most complex sensors: the Visible/Infrared Imager Radiometer Suite (VIIRS), the Cross Track Infrared Sounder (CrIS), and the Advanced Technology Microwave Sounder (ATMS). Overall system prime contractor selection was deferred until 2002 to minimize system level preliminary costs, allow sensor complement maturation, and delay the commitment to full system acquisition until approximately six years before the first satellite need date. The first two satellites will be incrementally funded with RDT&E funding. The rest will be fully funded with Missile Procurement funding.

(U) F. Schedule Profile

	<u>FY 2001</u>				<u>FY 2002</u>				<u>FY 2003</u>			
	1	2	3	4	1	2	3	4	1	2	3	4
(U) Program Rebaselined		*										
(U) Competitive Sensor Development Contracts Downselected				*								
(U) Milestone B/C decision and Award of EMD/Production contract									X			
(U) Sensors Critical Design Reviews										X	X	
(U) * = Completed Event X = Planned Event												

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2002			
BUDGET ACTIVITY					PE NUMBER AND TITLE			PROJECT		
04 - Demonstration and Validation					0603434F National Polar-Orbiting Operational Environmental Satellite System (NPOESS)			4056		
(U) A. Project Cost Breakdown (\$ in Thousands)										
						<u>FY 2001</u>		<u>FY 2002</u>		<u>FY 2003</u>
(U)	Program Office Support for PDRR efforts					643		920		682
(U)	System Architecture Studies/Definition/Ground System Risk Reduction					24,800		30,170		0
(U)	Government Led Risk Reduction/ Technology efforts					0		0		0
(U)	Sensor/Algorithm Development and Design/Fabrication for Risk Reduction Missions/Program Support					45,589		94,744		0
(U)	Engineering and Manufacturing Development effort					0		30,000		236,517
(U)	Total					71,032		155,834		237,199
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)										
(U) Performing Organizations:										
<u>Contractor or Government Performing Activity</u>	<u>Contract Method/Type or Funding Vehicle</u>	<u>Award or Obligation Date</u>	<u>Performing Activity EAC</u>	<u>Project Office EAC</u>	<u>Total Prior to FY 2001</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Product Development Organizations</u>										
Syst. Arch. Studies	C/CPFF	Sep 96	12,820	12,820	12,820					12,820
TRW (PDRR)	C/FFP	Dec 99	28,535	28,535	1,050	12,400	15,085			28,535
Lockheed Martin (PDRR)	C/FFP	Dec 99	28,035	28,035	550	12,400	15,085			28,035
Lockheed Martin	C/CPAF	Dec 94	4,489	4,489	4,489					4,489
Raytheon (VIIRS & CrIS)	C/CPFF	Jul 97	28,716	28,716	28,716					28,716
Ball Aerospace (CMIS & OMPS)	C/CPFF	Jul 97	29,746	29,746	23,993	5,753				29,746
Ball Aerospace (OMPS)	C/CPAF	May 99	35,910	35,910	6,135	13,482	16,293			35,910
ITT Aerospace (VIIRS & CrIS)	C/CPFF	Jul 97	30,475	30,475	30,475					30,475
Boeing (formerly Hughes)	C/CPFF	Jul 97	27,195	27,195	23,379	3,816				27,195
Project 4056					Page 5 of 7 Pages			Exhibit R-3 (PE 0603434F)		

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)								DATE February 2002		
BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT		
04 - Demonstration and Validation				0603434F National Polar-Orbiting Operational Environmental Satellite System (NPOESS)				4056		
(U) <u>Performing Organizations Continued:</u>										
<u>Product Development Organizations</u>										
Space and Communications (CMIS)										
Orbital Sciences (OMPS)	C/CPFF	Jul 97	2,578	2,578	2,578					2,578
SAAB Ericsson (GPSOS)	C/CPFF	Jul 97	2,786	2,786	2,786					2,786
SAAB Ericsson (GPSOS)	SS/FFP	Aug 99	6,200	6,200	850	2,450	2,900			6,200
ITT Aerospace (CrIS)	C/CPAF	Aug 99	34,875	34,875	3,700	7,000	24,085			34,785
Raytheon (VIIRS)	C/CPAF	Nov 00	40,309	40,309		13,053	27,256			40,309
Boeing (CMIS)	C/CPAF	Jul 01	24,210	24,210			24,210			24,210
Other Contracts (Shared System Performance Responsibility(SSPR), ground system, leveraged sensors)	MISC	Various	N/A	N/A	21,796	35	30,000	236,517	1,250,763	1,539,111
Government Led Studies	Gov. Orgs.	Various	26,302	26,302	26,302					26,302
<u>Support and Management Organizations</u>										
Integrated Program Office (IPO) Support	Various	Various	23,127	23,127	13,831	643	920	682	7,051	23,127
<u>Test and Evaluation Organizations</u>										
TBD										
(U) <u>Government Furnished Property:</u>										
	<u>Contract Method/Type</u>	<u>Award or</u>								
<u>Item</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Delivery</u>		<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Description</u>	<u>Vehicle</u>	<u>Date</u>	<u>Date</u>		<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Complete</u>	<u>Program</u>
<u>Product Development Property</u>										
NOT APPLICABLE										
Project 4056			Page 6 of 7 Pages				Exhibit R-3 (PE 0603434F)			

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)					DATE February 2002	
BUDGET ACTIVITY		PE NUMBER AND TITLE			PROJECT	
04 - Demonstration and Validation		0603434F National Polar-Orbiting Operational Environmental Satellite System (NPOESS)			4056	
(U) <u>Government Furnished Property Continued:</u>						
<u>Support and Management Property</u>						
NOT APPLICABLE						
<u>Test and Evaluation Property</u>						
NOT APPLICABLE						
		<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>
		<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Complete</u>
						<u>Total</u>
<u>Subtotals</u>						
Subtotal Product Development		189,619	70,389	154,914	236,517	1,250,763
Subtotal Support and Management		13,831	643	920	682	7,051
Subtotal Test and Evaluation						
Total Project		203,450	71,032	155,834	237,199	1,257,814
						1,925,329

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 2002
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BUDGET ACTIVITY 04 - Demonstration and Validation	PE NUMBER AND TITLE 0603438F Space Control Technology	PROJECT 2611
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COST (\$ in Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
2611 Technology Insertion Planning and Analysis	7,086	32,344	13,814	13,750	13,704	13,881	14,058	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0

Note: In FY2003, the following projects were transferred to PE 0604421F, Counterspace Systems, in order to perform Budget Activity 5 work, Engineering and Manufacturing Development:

- Threat Warning and Attack Reporting System Engineering and Manufacturing Development
- Counter Satellite Communications System Engineering and Manufacturing Development
- Counter Surveillance/Reconnaissance System Engineering and Manufacturing Development

In FY02, the Counter Surveillance and Reconnaissance project in Space Control Technology received \$5.0M as part of the Defense Emergency Relief Fund (DERF). Funding was used to accelerate technology development in support of operation ENDURING FREEDOM and HOMELAND DEFENSE. This funding is not reflected in the FY02 program total.

(U) A. Mission Description

This program supports a range of activities including technology planning, development, demonstrations and prototyping, as well as modeling, simulations and exercises to support development of tactics and procedures in the Space Control mission area. The types of Space Control activities accomplished are surveillance, protection, prevention, and negation. Surveillance is the monitoring, detecting, identifying, tracking, assessing, verifying, categorizing, and characterizing, objects and events in space for use in the Space Control mission area. Protection includes defensive activities to protect U.S. and friendly space-systems assets, resources, and operations from enemy attempts to negate or interfere. Prevention limits or eliminates an adversary's ability to use U.S. space systems and services for purposes hostile to U.S. national security interests. Negation activities disrupt, deny, degrade or destroy an adversary's space systems, or the information they provide, which may be used for purposes hostile to U.S. national security interests. Consistent with DOD policy, the negation efforts of this program focus only on negation technologies which have temporary, localized, and reversible effects. Also supported is the development of the system architecture for space control elements of the space range. This includes development and demonstration of test assets, special test equipment, capabilities and systems required to test, validate, and verify performance of integrated space control technologies. Additionally, this program supports the development of test range assets required to support exercises, training, and tactics development for space control technologies and systems.

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 2002
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
04 - Demonstration and Validation	0603438F Space Control Technology	2611
(U) <u>A. Mission Description Continued</u>		
(U) <u>FY 2001 (\$ in Thousands)</u>		
(U) \$1,440	Developed potential technical solutions to address surveillance systems deficiencies and links to space control requirements.	
(U) \$733	Developed potential technical solutions to address space system protection shortfalls. Developed potential technical solutions to address threat warning and attack reporting shortfalls and determining reporting architecture and most promising technologies to pursue.	
(U) \$4,913	Continued development of technologies to counter surveillance, reconnaissance, and communications satellite systems.	
(U) \$7,086	Total	
(U) <u>FY 2002 (\$ in Thousands)</u>		
(U) \$6,028	Accomplish threat warning and attack reporting AoA. Continue risk reduction activities, such as threat detection and characterization technology demonstrations, 'red team' vulnerability assessments, system architecture development, acquisition planning and preparation to support a Milestone B decision in FY03.	
(U) \$9,580	Begin the development and fielding of a small, mobile/transportable system to counter satellite communication systems. Develop and demonstrate advanced counter communications technologies and techniques.	
(U) \$8,748	Begin development and demonstration of a system to counter surveillance and reconnaissance satellite systems. Participate in exercises and demonstrations of a counter surveillance reconnaissance (SR) system. Complete military utility analysis, risk reduction efforts, and perform pre-concept exploration and concept definition, system architecture development, and planning to support FY02 and early FY03 decisions for system development. Continue to develop advanced counter-SR techniques.	
(U) \$988	Continue development and demonstration of advanced techniques and technologies for space control prevention systems in the laboratory and field begun in FY99 and not funded in FY00/01.	
(U) \$7,000	Begin development of the system architecture and acquisition of Space Control elements of the Space range. Begin demonstration of test assets, special test equipment, capabilities and systems required to test, validate, and verify performance of integrated Space Control technologies. Develop the test range assets to exercise, train, and develop tactics for Space Control technologies and systems.	
(U) \$32,344	Total	
(U) <u>FY 2003 (\$ in Thousands)</u>		
(U) \$3,000	Continue 'Red Team' vulnerability assessments. Includes vulnerabilities of space/link/ground segments of AF space systems. Perform assessments on new AF space systems: categorize effects for support to Satellite-As-A-Sensor activities.	
(U) \$3,000	Continue development and demonstration of advanced counter communications technologies and techniques, to include jam-resistant communications techniques. Begin exploring technologies leading to future generation counter-communications systems and advanced target	
Project 2611	Page 2 of 7 Pages	Exhibit R-2 (PE 0603438F)

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BUDGET ACTIVITY 04 - Demonstration and Validation	PE NUMBER AND TITLE 0603438F Space Control Technology																																																								
	PROJECT 2611																																																								
<p>(U) <u>A. Mission Description Continued</u></p> <p>(U) <u>FY 2003 (\$ in Thousands) Continued</u></p> <p>(U) \$2,214 characteristics.</p> <p>(U) \$2,214 Continue to develop, prototype, and demonstrate advanced counter surveillance, reconnaissance techniques. Begin technology development and demonstration of future generation counter surveillance and reconnaissance capabilities.</p> <p>(U) \$1,500 Continue development and demonstration of advanced techniques and technologies for space control prevention systems in the laboratory and field. Includes techniques and technologies for denying adversary use of blue systems on communications, sensor, and navigation platforms.</p> <p>(U) \$4,100 Continue development of the system architecture and acquisition of Space Control elements of the Space Range. Continue demonstration of test assets, special test equipment, capabilities and systems required to test, validate, and verify performance of integrated Space Control technologies. Continue developing the test range assets to exercise, train, and develop tactics for Space Control technologies and systems.</p> <p>(U) \$13,814 Total</p> <p>(U) <u>B. Budget Activity Justification</u></p> <p>This program is in budget activity 4 - Demonstration and Validation, because it supports the research, demonstration, and validation of Space Control technologies.</p> <p>(U) <u>C. Program Change Summary (\$ in Thousands)</u></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:50%;"></th> <th style="text-align: center;"><u>FY 2001</u></th> <th style="text-align: center;"><u>FY 2002</u></th> <th style="text-align: center;"><u>FY 2003</u></th> <th style="text-align: center;"><u>Total Cost</u></th> </tr> </thead> <tbody> <tr> <td>(U) Previous President's Budget</td> <td style="text-align: center;">7,897</td> <td style="text-align: center;">33,022</td> <td style="text-align: center;">13,814</td> <td style="text-align: center;">TBD</td> </tr> <tr> <td>(U) Appropriated Value</td> <td style="text-align: center;">9,728</td> <td style="text-align: center;">33,022</td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Appropriated Value</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> a. Congressional/General Reductions</td> <td style="text-align: center;">-89</td> <td></td> <td></td> <td></td> </tr> <tr> <td> b. Small Business Innovative Research</td> <td style="text-align: center;">-613</td> <td></td> <td></td> <td></td> </tr> <tr> <td> c. Omnibus or Other Above Threshold Reprogram</td> <td style="text-align: center;">0</td> <td></td> <td></td> <td></td> </tr> <tr> <td> d. Below Threshold Reprogram</td> <td style="text-align: center;">-1,940</td> <td></td> <td></td> <td></td> </tr> <tr> <td> e. Rescissions</td> <td></td> <td style="text-align: center;">-678</td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Budget Years Since FY 2002 PBR</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) Current Budget Submit/FY 2003 PBR</td> <td style="text-align: center;">7,086</td> <td style="text-align: center;">32,344</td> <td style="text-align: center;">13,814</td> <td style="text-align: center;">TBD</td> </tr> </tbody> </table> <p>(U) <u>Significant Program Changes:</u></p>				<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Total Cost</u>	(U) Previous President's Budget	7,897	33,022	13,814	TBD	(U) Appropriated Value	9,728	33,022			(U) Adjustments to Appropriated Value					a. Congressional/General Reductions	-89				b. Small Business Innovative Research	-613				c. Omnibus or Other Above Threshold Reprogram	0				d. Below Threshold Reprogram	-1,940				e. Rescissions		-678			(U) Adjustments to Budget Years Since FY 2002 PBR					(U) Current Budget Submit/FY 2003 PBR	7,086	32,344	13,814	TBD
	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Total Cost</u>																																																					
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Project 2611	Page 3 of 7 Pages	Exhibit R-2 (PE 0603438F)																																																							

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE February 2002			
BUDGET ACTIVITY 04 - Demonstration and Validation					PE NUMBER AND TITLE 0603438F Space Control Technology					PROJECT 2611			
(U) D. Other Program Funding Summary (\$ in Thousands)													
	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>				
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>					
(U) RDT&E, PE0604421F, Counterspace Systems	0	0	40,053	87,863	74,761	25,981	14,966	Continuing		TBD			
(U) E. Acquisition Strategy													
All contracts funded in this program element will be awarded using competitive procedures to the maximum extent possible.													
(U) F. Schedule Profile													
	<u>FY 2001</u>				<u>FY 2002</u>				<u>FY 2003</u>				
	1	2	3	4	1	2	3	4	1	2	3	4	
(U) AFSPC Space Control Mission Area Plan Completion						X							
(U) Protection													
(U) Potential attack reporting solutions and architecture studies complete						X							
(U) Begin development of threat warning and attack reporting architecture						X							
(U) Satellite as a Sensor evaluations complete											X		
(U) Negation													
(U) Counter Communications Technology Demonstration			*										
(U) Begin Advanced Technology development for negation systems									X				
(U) Begin development of a Counter-Communications system						X							
(U) Complete Counter- Surveillance/Recon Military Utility Analysis					*								
(U) Acquisition decision to enter Counter-SR system development						X							
(U) Milestone B -- Counter SR							X						
(U) New start for Counter-SR system development								X					
(U) Prevention													
(U) Development of advanced techniques and technologies									X				
(U) Space Range													
(U) Development of system architecture and system acquisition new start						*							
(U) Continue demonstration of test assets											X		
Project 2611	Page 4 of 7 Pages						Exhibit R-2 (PE 0603438F)						

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)							DATE February 2002					
BUDGET ACTIVITY	PE NUMBER AND TITLE						PROJECT					
04 - Demonstration and Validation	0603438F Space Control Technology						2611					
(U) <u>F. Schedule Profile Continued</u>		<u>FY 2001</u>				<u>FY 2002</u>				<u>FY 2003</u>		
(U) Continue developing test range technologies and systems	1	2	3	4	1	2	3	4	1	2	3	4
* = Completed Event X = Scheduled Event										X		
Project 2611			Page 5 of 7 Pages				Exhibit R-2 (PE 0603438F)					

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2002			
BUDGET ACTIVITY					PE NUMBER AND TITLE			PROJECT		
04 - Demonstration and Validation					0603438F Space Control Technology			2611		
(U) A. Project Cost Breakdown (\$ in Thousands)										
						<u>FY 2001</u>		<u>FY 2002</u>		<u>FY 2003</u>
(U)	Surveillance technology assessment					1,440		0		0
(U)	Protection technology assessment					733		6,028		3,000
(U)	Negation technology development					4,913				5,214
(U)	Counter Communications system development					0		9,580		
(U)	Counter Surveillance/Reconnaissance technology and system development							8,748		
(U)	Prevention technology development							988		1,500
(U)	Space Control Test Range							7,000		4,100
(U)	Total					7,086		32,344		13,814
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)										
(U) Performing Organizations:										
<u>Contractor or Government</u>	<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Performing Activity</u>	<u>Project Office</u>	<u>Total Prior to FY 2001</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Activity</u>	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>						
<u>Product Development Organizations</u>										
FFRDC, Various SETA, SPO	Various				9,062	6,190	21,220	11,268	Continuing	TBD
AFRL	Various				10,148	800	6,826	466	Continuing	TBD
<u>Support and Management Organizations</u>										
SMC	Various				260	96	3,576	2,080	Continuing	TBD
AFRL	Various						722		Continuing	TBD
<u>Test and Evaluation Organizations</u>										
(U) Government Furnished Property:										
<u>Item</u>	<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Delivery</u>		<u>Total Prior to FY 2001</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Description</u>	<u>Vehicle</u>	<u>Date</u>	<u>Date</u>							

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)				DATE		
04 - Demonstration and Validation				February 2002		
BUDGET ACTIVITY				PE NUMBER AND TITLE		PROJECT
04 - Demonstration and Validation				0603438F Space Control Technology		2611
(U) Government Furnished Property Continued:						
<u>Item</u>	<u>Contract</u>	<u>Award or</u>	<u>Delivery</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>
<u>Description</u>	<u>Method/Type</u>	<u>or Funding</u>	<u>Date</u>	<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>
	<u>Vehicle</u>	<u>Obligation</u>				
		<u>Date</u>				
<u>Product Development Property</u>						
None						
<u>Support and Management Property</u>						
None						
<u>Test and Evaluation Property</u>						
None						
				<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>
				<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>
						<u>Budget</u>
						<u>FY 2003</u>
						<u>Complete</u>
						<u>Total</u>
						<u>Program</u>
<u>Subtotals</u>						
Subtotal Product Development				19,210	6,990	28,046
Subtotal Support and Management				260	96	4,298
Subtotal Test and Evaluation						
Total Project				19,470	7,086	32,344
						13,814
						TBD
						TBD
						TBD

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 2002	
BUDGET ACTIVITY 04 - Demonstration and Validation				PE NUMBER AND TITLE 0603617F Command Control and Communication Applications					
COST (\$ in Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	7,368	0	0	0	0	0	0	0	75,272
2314 Tactical Air Surveillance	444	0	0	0	0	0	0	0	8,989
2317 Tactical Air Information Production & Distribution	3,068	0	0	0	0	0	0	0	18,501
2321 Tactical Battle Information Management	3,635	0	0	0	0	0	0	0	45,054
3804 Tactical Air Forces Systems Integration	221	0	0	0	0	0	0	0	2,728
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0
Program terminated in FY02. (U) A. Mission Description This program is designed to rapidly transition development efforts in the science and technology base directly to warfighting commands. Projects are directly responsive to operational requirements for improved battle management, communications, theater missile defense (TMD), and surveillance capability. This program takes advantage of advanced information technology developments throughout the Services and industry as well as off-the-shelf technology. The program develops, integrates and supports fielding of joint mission critical software applications to the Theater Battle Management Core Systems (TBMCS) and the Air Force Global Command and Control System (GCCS). The program develops, integrates and validates information distribution and assurance technologies in the areas of enterprise network management and control, defensive information warfare, and communications connectivity required for modernization and improvement of the Air Force Global Grid.									

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 2002																																																								
BUDGET ACTIVITY 04 - Demonstration and Validation	PE NUMBER AND TITLE 0603617F Command Control and Communication Applications																																																									
<p>(U) <u>B. Budget Activity Justification</u> This program is in Budget Activity 4, Demonstration and Validation, because its products are primarily advanced development models, rapid prototype efforts, and software developed through evolutionary spiral development acquisition methods.</p>																																																										
<p>(U) <u>C. Program Change Summary (\$ in Thousands)</u></p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 60%;"></th> <th style="text-align: center;"><u>FY 2001</u></th> <th style="text-align: center;"><u>FY 2002</u></th> <th style="text-align: center;"><u>FY 2003</u></th> <th style="text-align: center;"><u>Total Cost</u></th> </tr> </thead> <tbody> <tr> <td>(U) Previous President's Budget</td> <td style="text-align: center;">7,828</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td></td> </tr> <tr> <td>(U) Appropriated Value</td> <td style="text-align: center;">7,828</td> <td style="text-align: center;">0</td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Appropriated Value</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> a. Congressional/General Reductions</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> b. Small Business Innovative Research</td> <td style="text-align: center;">-240</td> <td></td> <td></td> <td></td> </tr> <tr> <td> c. Omnibus or Other Above Threshold Reprogram</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> d. Below Threshold Reprogram</td> <td style="text-align: center;">-148</td> <td></td> <td></td> <td></td> </tr> <tr> <td> e. Rescissions</td> <td style="text-align: center;">-72</td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Budget Years Since FY 2002 PBR</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) Current Budget Submit/FY 2003 PBR</td> <td style="text-align: center;">7,368</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">75,272</td> </tr> </tbody> </table>					<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Total Cost</u>	(U) Previous President's Budget	7,828	0	0		(U) Appropriated Value	7,828	0			(U) Adjustments to Appropriated Value					a. Congressional/General Reductions					b. Small Business Innovative Research	-240				c. Omnibus or Other Above Threshold Reprogram					d. Below Threshold Reprogram	-148				e. Rescissions	-72				(U) Adjustments to Budget Years Since FY 2002 PBR					(U) Current Budget Submit/FY 2003 PBR	7,368	0	0	75,272
	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Total Cost</u>																																																						
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(U) Current Budget Submit/FY 2003 PBR	7,368	0	0	75,272																																																						
<p>(U) <u>Significant Program Changes:</u> Program terminated in FY02.</p>																																																										

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	DATE February 2002
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BUDGET ACTIVITY 04 - Demonstration and Validation	PE NUMBER AND TITLE 0603617F Command Control and Communication Applications	PROJECT 2314
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COST (\$ in Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
2314 Tactical Air Surveillance	444	0	0	0	0	0	0	0	8,989

- (U) **A. Mission Description**
 Develops and demonstrates advanced aerospace surveillance technology in support of next generation sensors and sensor signal processing. Investigates non-radar and/or adjunct radar sensors to address the Combat Air Forces (CAF) surveillance, detection, tracking and identification requirements not satisfied by an active radar.
- (U) **FY 2001 (\$ in Thousands)**
 (U) \$174 Completed GTACS Bistatic/ESM ground demonstration
 (U) \$270 Completed GTACS Bistatic/ESM Air Target ID Breadboard
 (U) \$444 Total
- (U) **FY 2002 (\$ in Thousands)**
 (U) \$0 No Activity
 (U) \$0 Total
- (U) **FY 2003 (\$ in Thousands)**
 (U) \$0 No Activity
 (U) \$0 Total
- (U) **B. Project Change Summary**
 Not applicable

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)							DATE February 2002			
BUDGET ACTIVITY 04 - Demonstration and Validation				PE NUMBER AND TITLE 0603617F Command Control and Communication Applications				PROJECT 2314		
(U) C. Other Program Funding Summary (\$ in Thousands)										
	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>	
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>		
(U) RDT&E, AF (0603789F, Project 4072)	9,788									
(U) RDT&E, AF (0207412F, Project 485L)	450									
(U) D. Acquisition Strategy										
All contracts in this project are awarded in full competition and are Cost Plus Fixed Fee (CPFF) or Cost Plus Award Fee (CPAF) as appropriate for advanced development.										
(U) E. Schedule Profile										
			<u>FY 2001</u>			<u>FY 2002</u>			<u>FY 2003</u>	
			1	2	3	4	1	2	3	4
(U) Completed Track Before Detect for TMD						*				
(U) Completed GTACS Bistatic/ESM System Definition						*				
(U) Completed GTACS Bistatic/ESM Ground Demo						*				
(U) Completed GTACS Bistatic Air Target ID Breadboard						*				
Note: * represents a completed event; X represents a planned event.										
Project 2314			Page 4 of 20 Pages				Exhibit R-2A (PE 0603617F)			

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2002			
BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT		
04 - Demonstration and Validation				0603617F Command Control and Communication Applications				2314		
(U) A. Project Cost Breakdown (\$ in Thousands)										
						<u>FY 2001</u>		<u>FY 2002</u>		<u>FY 2003</u>
(U)	Primary Hardware Development					414		0		0
(U)	Government Engineering Support					30		0		0
(U)	Total					444		0		0
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)										
(U) Performing Organizations:										
<u>Contractor or Government Performing Activity</u>	<u>Contract Method/Type or Funding Vehicle</u>	<u>Award or Obligation Date</u>	<u>Performing Activity EAC</u>	<u>Project Office EAC</u>	<u>Total Prior to FY 2001</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Product Development Organizations</u>										
Hughes	C/CPFF	June 95	1,179	1,179	1,179	0	0	0	0	1,179
DSA	Tsk Ordr	Apr 97	502	502	502	0	0	0	0	502
	Agmt									
Northrop-Grumman	Tsk Ordr	Aug 98	488	488	0	0	0	0	0	0
	Agmt									
Sensis	TBD	TBD	264	264	0	0	0	0	0	0
TBD	TBD	TBD	0	0	0	390	0	0	0	390
<u>Support and Management Organizations</u>										
AF Research Lab	In-house	n/s	N/A	N/A	6,419	54	0	0	0	6,473
Miscellaneous	Various	Various	N/A	N/A	0	0	0	0	0	0
<u>Test and Evaluation Organizations</u>										

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)				DATE February 2002		
BUDGET ACTIVITY	PE NUMBER AND TITLE			PROJECT		
04 - Demonstration and Validation	0603617F Command Control and Communication Applications			2314		
	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Subtotals</u>	<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Complete</u>	<u>Program</u>
Subtotal Product Development	1,681	390	0	0	0	2,071
Subtotal Support and Management	6,419	54	0	0	0	6,473
Subtotal Test and Evaluation						
Total Project	8,100	444	0	0	0	8,544

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)								DATE February 2002			
BUDGET ACTIVITY 04 - Demonstration and Validation				PE NUMBER AND TITLE 0603617F Command Control and Communication Applications				PROJECT 2317			
COST (\$ in Thousands)			FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
2317	Tactical Air Information Production & Distribution		3,068	0	0	0	0	0	0	0	18,501
<p>(U) <u>A. Mission Description</u> Integrates, demonstrates and transitions advanced information assurance and distribution technologies to acquisition organizations in support of the Integrated Command and Control System (IC2S). The goal is the creation of an assured, Global Information Grid (GIG) to support the warfighter and to support experimentation and demonstration processes (e.g. JEFX) to reduce the risk of transitioning advanced Government or commercial information technologies into military Enterprise systems. In coordinating with the strategic planning activities of AF/SC, AC2ISRC, HQ ESC, AFCA, ACC and AMC this project has been reorganized to more effectively demonstrate/validate the transition of AFRL technology into AF planned product acquisitions. The three program focus areas included in this project are: the AF Communications Enterprise Manager (ACEM), which provides capabilities for enterprise communications network management and control; the AF Enterprise Defense (AFED), which incorporates defensive information assurance capabilities; and the Enterprise Management System (EMS) that integrates the products from ACEM, AFED, and the Master Caution Panel (MCP funded under BPAC 2321) into a prototype enterprise management system, whose capabilities will be incrementally built, and shown at the Network Operations Support Center (NOSC) at Langley AFB, VA.</p> <p>(U) <u>FY 2001 (\$ in Thousands)</u> (U) \$1,783 Installed Air Force EnterpriseDefense (AFED) at AMC NOSC (May 01)and for demonstration and evaluation of capabilities (ongoing) (U) \$1,285 Air Force Enterprise Management (ACEM) installed on SIPRNET (Aug 01); under evaluation. Being folded into C2 MCP. Tech transition planning with TBMCS, CITS, TDC, and AFDI. (U) \$3,068 Total</p> <p>(U) <u>FY 2002 (\$ in Thousands)</u> (U) \$0 No Activity (U) \$0 Total</p> <p>(U) <u>FY 2003 (\$ in Thousands)</u> (U) \$0 No Activity (U) \$0 Total</p>											
Project 2317				Page 7 of 20 Pages				Exhibit R-2A (PE 0603617F)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)							DATE February 2002				
BUDGET ACTIVITY 04 - Demonstration and Validation				PE NUMBER AND TITLE 0603617F Command Control and Communication Applications				PROJECT 2317			
(U) B. Project Change Summary Project has been restructured to address the focus areas identified by AC2ISRC, specifically 'Enabling the Global Grid'. Three project programs were created to address this: AF Comprehensive Enterprise Management(ACEM), AF Enterprise Defense (AFED), and Enterprise Management System (EMS).											
(U) C. Other Program Funding Summary (\$ in Thousands)											
		<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>	
		<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>		
(U)	RDT&E, AF (0602702F, Project 4519)	13,208								13,208	
(U)	RDT&E, AF (0603789F, Project 2335)	2,557								2,557	
(U)	RDT&E, AF (0603789F, Project 4216)	2,640								2,640	
(U) D. Acquisition Strategy The Information Grid Division of the Air Force Research Laboratory's Information Directorate manages the acquisition of technology to be integrated via ESC's Global Grid and Defensive Information Warfare PAD's into acquisition programs such as Theater Deployable Communications (TDC) and the CITS/BITS programs. All contracts are awarded under full competition and include Cost Plus Fixed Fee (CPFF) and Cost Plus Award Fee (CPAF) as appropriate for advanced development efforts. All contracts use Evolutionary Prototyping, with heavy user participation.											
(U) E. Schedule Profile											
				<u>FY 2001</u>			<u>FY 2002</u>		<u>FY 2003</u>		
				1	2	3	4	1	2	3	4
(U)	Airborne Comm Relay (ACR)										
(U)	-- Multi-Band Antenna Design			*							
(U)	-- Wideband Power Amplifier Design										
(U)	AF Comp Enterprise Mgmt (ACEM)										
(U)	--Validate Cmdr's C2 ACEM tools			*							
(U)	--Show capability upgrade @ NOSC							*			
(U)	--Deliver & install final ACEM version							*			
Project 2317				Page 8 of 20 Pages				Exhibit R-2A (PE 0603617F)			

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)										DATE February 2002						
BUDGET ACTIVITY					PE NUMBER AND TITLE					PROJECT						
04 - Demonstration and Validation					0603617F Command Control and Communication Applications					2317						
(U) E. Schedule Profile Continued																
					<u>FY 2001</u>						<u>FY 2002</u>		<u>FY 2003</u>			
					1	2	3	4	1	2	3	4	1	2	3	4
(U) AF Enterprise Defense (AFED)																
(U) --Install AFED Spiral-2 ACC NOSC										*						
(U) Enterprise Management System																
(U) --Integrate Spiral-1 AFED/ACEM/MCP										*						
Project 2317					Page 9 of 20 Pages					Exhibit R-2A (PE 0603617F)						

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2002			
BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT		
04 - Demonstration and Validation				0603617F Command Control and Communication Applications				2317		
(U) A. Project Cost Breakdown (\$ in Thousands)										
						<u>FY 2001</u>		<u>FY 2002</u>		<u>FY 2003</u>
(U)	(U)	Primary Hardware/Software integration				2,595		0		0
(U)	(U)	Government Engineering Support				189		0		0
(U)	(U)	Contractor Engineering Support				284		0		0
(U)		Total				3,068		0		0
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)										
(U) Performing Organizations:										
<u>Contractor or Government Performing Activity</u>	<u>Contract Method/Type or Funding Vehicle</u>	<u>Award or Obligation Date</u>	<u>Performing Activity EAC</u>	<u>Project Office EAC</u>	<u>Total Prior to FY 2001</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Product Development Organizations</u>										
GE Marconi		Sept 98	1,661	1,661	210	0	0	0	0	210
BBN		Sept 96	1,370	1,370		587	0	0	0	587
USAF C2BL	PD				0	0	0	0	0	0
Various	TBD	TBD	TBD	TBD	0	1,970	0	0	0	1,970
<u>Support and Management Organizations</u>										
AF Research Lab	In-house	N/A	N/A	N/A	12,153	222	0	0	0	12,375
MITRE		N/A	N/A	TBD		289	0	0	0	289
<u>Test and Evaluation Organizations</u>										
Not Applicable										
(U) Government Furnished Property:										
<u>Item Description</u>	<u>Contract Method/Type or Funding Vehicle</u>	<u>Award or Obligation Date</u>	<u>Delivery Date</u>		<u>Total Prior to FY 2001</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget to Complete</u>	<u>Total Program</u>
Project 2317										

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)				DATE						
BUDGET ACTIVITY				PROJECT						
04 - Demonstration and Validation				February 2002						
PE NUMBER AND TITLE				PROJECT						
0603617F Command Control and Communication Applications				2317						
(U) Government Furnished Property Continued:										
<u>Item</u>	<u>Contract</u>	<u>Award or</u>		<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>	
<u>Description</u>	<u>Method/Type</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Delivery</u>	<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Complete</u>	<u>Program</u>
	<u>Vehicle</u>		<u>Date</u>	<u>Date</u>						
<u>Product Development Property</u>										
Not Applicable										
<u>Support and Management Property</u>										
<u>Test and Evaluation Property</u>										
<u>Subtotals</u>					<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
					<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Complete</u>	<u>Program</u>
Subtotal Product Development					210	2,557	0	0	0	2,767
Subtotal Support and Management					12,153	511	0	0	0	12,664
Subtotal Test and Evaluation										
Total Project					12,363	3,068	0	0	0	15,431

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)							DATE February 2002				
BUDGET ACTIVITY 04 - Demonstration and Validation				PE NUMBER AND TITLE 0603617F Command Control and Communication Applications				PROJECT 2321			
COST (\$ in Thousands)		FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost	
2321	Tactical Battle Information Management	3,635	0	0	0	0	0	0	0	45,054	
<p>(U) <u>A. Mission Description</u> Designs and integrates improvements to system software and Command Control (C2) applications via spiral development, rapid prototyping and maximum user participation in all design activities. Current focus is the functional development of the Joint Defensive Planner (JDP), designated by the Joint Staff (J6V) Joint Standards Air Operations Software Configuration Control Board as a joint application for use by all the Services. JDP will provide the single theater air and missile defense automated system that aids Joint air defense duty officers and the Area Air Defense Commander (AADC) and staff in planning the integrated employment of Defensive Counter-Air and Active and Passive Defenses in conjunction with Offensive Counter-Air, to destroy or neutralize enemy aircraft and theater missiles. Development is compliant with the Defense Information Infrastructure (DII) Common Operating Environment (COE) for integration into Theater Battle Management Core System (TBMCS) and the Global Command and Control System (GCCS). Future efforts respond to evolving concepts advocated by the Aerospace C2 & Intelligence Surveillance Reconnaissance Center (AC2ISRC). Emphasis is on Distributed Collaborative Dynamic Battle Management of Expeditionary Aerospace Forces (EAFs) in areas such as planning, execution management, retasking (mission reflow), Effects-Based-Operations (EBO), campaign assessment, atmospheric and space environmental effects on weapons and surveillance systems, and information warfare in support of Joint, Combined and Coalition Theater Air Operations.</p> <p>(U) <u>FY 2001 (\$ in Thousands)</u> (U) \$1,322 Completed JDP v 2.0 software development and integration into TBMCS V 1.1; will continue with TBMCS funding (U) \$413 Adapted JDP v 2.0 for GCCS-AF integration; will continue with BMDO funds in FY02. (U) \$510 Completed initial effects based operations for joint aerospace operations (U) \$916 Completed integration activity for coordinated strategy-to-task for offensive, defensive and information operations including atmospheric environment impacts prototypes for TBMCS V2.X (U) \$474 Completed approach for decision aids for space environment impact effects on coordinated strategy-to-task for joint air operations (U) \$3,635 Total</p> <p>(U) <u>FY 2002 (\$ in Thousands)</u> (U) \$0 No Activity (U) \$0 Total</p>											
Project 2321				Page 12 of 20 Pages				Exhibit R-2A (PE 0603617F)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)							DATE February 2002		
BUDGET ACTIVITY 04 - Demonstration and Validation				PE NUMBER AND TITLE 0603617F Command Control and Communication Applications			PROJECT 2321		
(U) <u>A. Mission Description Continued</u>									
(U) <u>FY 2003 (\$ in Thousands)</u>									
(U) \$0 No Activity									
(U) \$0 Total									
(U) <u>B. Project Change Summary</u> Not Applicable									
(U) <u>C. Other Program Funding Summary (\$ in Thousands)</u>									
	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) RDT&E, AF (0603789F, Project 2335)	2,557	5,087	0	0	0	0	0	0	7,644
(U) RDT&E, AF (0207438F, Project 4790)	20,439	18,120	0	0	0	0	0	0	38,559
(U) <u>D. Acquisition Strategy</u> The Systems Division of the Air Force Research Laboratory's Information Directorate manages the acquisition of technology under the direct guidance of the AC2ISRC. The objective is to integrate into the Theater Battle Management Core Systems (TBMCS) through a Memorandum of Understanding (MOU) entitled 'Shared management of TBMCS Technology Development' with the TBMCS System Program Office (SPO). As nominated by the Air Staff, some applications are designed for integration into the Air Force Global Command and Control System (GCCS-AF). All contracts are awarded under full competition and include Cost Plus Fixed Fee (CPFF) and Cost Plus Award Fee (CPAF) as appropriate for advanced development efforts. All contracts use the Spiral Development Model and Evolutionary Prototyping, with heavy user participation from all the Services; and produce joint software applications, as designated by the JCS Joint Standard Air Operations Software Configuration Control Board.									
(U) <u>E. Schedule Profile</u>									
			<u>FY 2001</u>			<u>FY 2002</u>		<u>FY 2003</u>	

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)										DATE February 2002				
BUDGET ACTIVITY					PE NUMBER AND TITLE					PROJECT				
04 - Demonstration and Validation					0603617F Command Control and Communication Applications					2321				
(U) E. Schedule Profile Continued														
		<u>FY 2001</u>					<u>FY 2002</u>					<u>FY 2003</u>		
	1	2	3	4	1	2	3	4	1	2	3	4		
(U) Joint Defensive Planner sw development & integration - EP #2/3														
(U) - Functional Validation Model #1 & 2	*		*											
(U) - TBMCS v 1.1 integration tested				*										
(U) Coordinated Strategy-to-task Spiral 2				*										
(U) Completed Effects Based Operations Spiral 1				*										
Note: * represents a completed event; X represents a planned event														
Project 2321				Page 14 of 20 Pages				Exhibit R-2A (PE 0603617F)						

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2002			
BUDGET ACTIVITY					PE NUMBER AND TITLE			PROJECT		
04 - Demonstration and Validation					0603617F Command Control and Communication Applications			2321		
(U) A. Project Cost Breakdown (\$ in Thousands)										
						<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>		
(U)	Software Development					2,674	0	0		
(U)	Government Engineering Support					728	0	0		
(U)	Contractor Engineering Support					233	0	0		
(U)	Total					3,635	0	0		
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)										
(U) Performing Organizations:										
<u>Contractor or Government Performing Activity</u>	<u>Contract Method/Type or Funding Vehicle</u>	<u>Award or Obligation Date</u>	<u>Performing Activity EAC</u>	<u>Project Office EAC</u>	<u>Total Prior to FY 2001</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Product Development Organizations</u>										
Logicon	C/CPFF	June 94	9,782	9,782	9,114		0	0	0	9,114
PRB Assoc.	C/CPAF	Feb 97	7,435	7,435	1,496	922	0	0	0	2,418
TBD						1,672	0	0	0	1,672
<u>Support and Management Organizations</u>										
AF Research Lab	In-house	N/A	N/A	TBD	27,423	837	0	0	0	28,260
Lockheed Martin						110	0	0	0	110
Litton/TASC						94	0	0	0	94
Miscellaneous	Various	Various	N/A	TBD			0	0	0	0
<u>Test and Evaluation Organizations</u>										
Not Applicable										
Project 2321					Page 15 of 20 Pages			Exhibit R-3 (PE 0603617F)		

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)				DATE February 2002		
BUDGET ACTIVITY	PE NUMBER AND TITLE			PROJECT		
04 - Demonstration and Validation	0603617F Command Control and Communication Applications			2321		
	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Subtotals</u>	<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Complete</u>	<u>Program</u>
Subtotal Product Development	10,610	2,594	0	0	0	13,204
Subtotal Support and Management	27,423	1,041	0	0	0	28,464
Subtotal Test and Evaluation						
Total Project	38,033	3,635	0	0	0	41,668

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)								DATE February 2002																																		
BUDGET ACTIVITY 04 - Demonstration and Validation				PE NUMBER AND TITLE 0603617F Command Control and Communication Applications				PROJECT 3804																																		
COST (\$ in Thousands)				FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost																														
3804	Tactical Air Forces Systems Integration			221	0	0	0	0	0	0	0	2,728																														
<p>(U) <u>A. Mission Description</u> Provides systems engineering and integration support to the Aerospace Command Control & Intelligence Surveillance Reconnaissance Center (AC2ISRC) development efforts. Project addresses integration and interoperability issues associated with AC2ISRC directed efforts, makes recommendations, identifies deficiencies, and establishes requirements for development efforts.</p> <p>(U) <u>FY 2001 (\$ in Thousands)</u> (U) \$221 Completed detailed analysis of Effects-Based-Operations (EBO) prototype tools for development and interoperability (see BPAC 642321) for technology transition within PE (U) \$221 Total</p> <p>(U) <u>FY 2002 (\$ in Thousands)</u> (U) \$0 No Activity (U) \$0 Total</p> <p>(U) <u>FY 2003 (\$ in Thousands)</u> (U) \$0 No Activity (U) \$0 Total</p> <p>(U) <u>B. Project Change Summary</u> Not Applicable</p> <p>(U) <u>C. Other Program Funding Summary (\$ in Thousands)</u></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th style="text-align: center;"><u>FY 2001</u></th> <th style="text-align: center;"><u>FY 2002</u></th> <th style="text-align: center;"><u>FY 2003</u></th> <th style="text-align: center;"><u>FY 2004</u></th> <th style="text-align: center;"><u>FY 2005</u></th> <th style="text-align: center;"><u>FY 2006</u></th> <th style="text-align: center;"><u>FY 2007</u></th> <th style="text-align: center;"><u>Cost to</u></th> <th style="text-align: center;"><u>Total Cost</u></th> </tr> <tr> <th></th> <th style="text-align: center;"><u>Actual</u></th> <th style="text-align: center;"><u>Estimate</u></th> <th style="text-align: center;"><u>Complete</u></th> <th></th> </tr> </thead> <tbody> <tr> <td>(U) Not Applicable</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>														<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>		<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>		(U) Not Applicable									
	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>																																	
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>																																		
(U) Not Applicable																																										
Project 3804				Page 17 of 20 Pages				Exhibit R-2A (PE 0603617F)																																		

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)							DATE February 2002																																							
BUDGET ACTIVITY	PE NUMBER AND TITLE						PROJECT																																							
04 - Demonstration and Validation	0603617F Command Control and Communication Applications						3804																																							
<p>(U) <u>D. Acquisition Strategy</u> Not Applicable</p> <p>(U) <u>E. Schedule Profile</u></p> <table style="width: 100%; border: none;"> <thead> <tr> <th style="width: 40%;"></th> <th colspan="3" style="text-align: center;"><u>FY 2001</u></th> <th colspan="3" style="text-align: center;"><u>FY 2002</u></th> <th colspan="3" style="text-align: center;"><u>FY 2003</u></th> </tr> </thead> <tbody> <tr> <td style="vertical-align: top;">(U) Evaluated effects based ops prototypes</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> <td style="text-align: center;">4</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> <td style="text-align: center;">4</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> <td style="text-align: center;">4</td> </tr> <tr> <td style="vertical-align: top;">Note: * represents a completed event; X represents a planned event.</td> <td></td> <td></td> <td></td> <td style="text-align: center;">*</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>												<u>FY 2001</u>			<u>FY 2002</u>			<u>FY 2003</u>			(U) Evaluated effects based ops prototypes	1	2	3	4	1	2	3	4	1	2	3	4	Note: * represents a completed event; X represents a planned event.				*								
	<u>FY 2001</u>			<u>FY 2002</u>			<u>FY 2003</u>																																							
(U) Evaluated effects based ops prototypes	1	2	3	4	1	2	3	4	1	2	3	4																																		
Note: * represents a completed event; X represents a planned event.				*																																										
Project 3804			Page 18 of 20 Pages				Exhibit R-2A (PE 0603617F)																																							

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)						DATE February 2002					
BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT			
04 - Demonstration and Validation				0603617F Command Control and Communication Applications				3804			
(U) A. Project Cost Breakdown (\$ in Thousands)											
						<u>FY 2001</u>		<u>FY 2002</u>		<u>FY 2003</u>	
(U)	Systems Engineering					221		0		0	
(U)	Government Engineering Support										
(U)	Contractor Engineering Support										
(U)	Total					221		0		0	
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)											
(U) Performing Organizations:											
	<u>Contractor or Government Performing Activity</u>	<u>Contract Method/Type or Funding Vehicle</u>	<u>Award or Obligation Date</u>	<u>Performing Activity EAC</u>	<u>Project Office EAC</u>	<u>Total Prior to FY 2001</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Product Development Organizations</u>											
N/A											
<u>Support and Management Organizations</u>											
	MITRE	SS/TO&P	Various	N/A	TBD	2,138	0	0	0	0	2,138
	AF Research Lab/AC2ISRC	In-house	N/A	N/A	TBD	151	221	0	0	0	372
	Miscellaneous	Various	Various	N/A	TBD	0	0	0	0	0	0
<u>Test and Evaluation Organizations</u>											
(U) Government Furnished Property:											
	<u>Item Description</u>	<u>Contract Method/Type or Funding Vehicle</u>	<u>Award or Obligation Date</u>	<u>Delivery Date</u>		<u>Total Prior to FY 2001</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Product Development Property</u>											
Not Applicable											
Project 3804				Page 19 of 20 Pages				Exhibit R-3 (PE 0603617F)			

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)				DATE February 2002		
BUDGET ACTIVITY		PE NUMBER AND TITLE			PROJECT	
04 - Demonstration and Validation		0603617F Command Control and Communication Applications			3804	
(U) Government Furnished Property Continued:						
<u>Support and Management Property</u>						
Not Applicable						
<u>Test and Evaluation Property</u>						
Not Applicable						
<u>Subtotals</u>		<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>
		<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Complete</u>
Subtotal Product Development						<u>Total</u>
Subtotal Support and Management		2,289	221	0	0	2,510
Subtotal Test and Evaluation						
Total Project		2,289	221	0	0	2,510

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 2002
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BUDGET ACTIVITY 04 - Demonstration and Validation	PE NUMBER AND TITLE 0603742F Combat Identification Technology	PROJECT 2597
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COST (\$ in Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
2597 Noncooperative Identification Subsystems	10,497	11,409	12,434	16,955	19,935	20,332	20,739	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0

(U) A. Mission Description

U.S. Combat Air Forces have a critical requirement to positively identify enemy, friendly, and neutral aircraft and battlefield equipment. Multiple other Joint MNS, Air Force ORDs, and NATO requirements documents also state CID operational needs. High confidence & high probability of ID, all weather & day/night operational needs as well as timely and reliable CID will reduce fratricide, improve combat effectiveness, and enable battlespace commanders to effectively manage and control their forces.

The Combat ID Technology program investigates (studies & analyses), develops, demonstrates, and transitions (to EMD) promising target identification technologies. These technologies include both cooperative and non-cooperative techniques that improve our ability to positively identify ground and air targets (i.e. Air/Space-to-Surface, Surface-to-Surface, Surface-to-Air/Space and, Air/Space-to-Air CID).

Examples of promising Air-to-Surface technologies include electro-optical (EO) systems that significantly increase ID ranges, exploitation of vibration signatures to increase probability and confidence of ground target ID, tagging and, maturation of algorithms to support Automatic Target Cueing and Automatic Target Recognition.

Examples of Air-to-Air technologies include High Range Resolution (HRR) techniques to increase ID ranges as well as confidence and, improvements to the Mark XII system (specifically, implementation of mode V to enable robust, secure Identification Friend or Foe (IFF)) and tagging.

(U) FY 2001 (\$ in Thousands)

- (U) \$2,494** Performed synthetic target database development in conjunction with the National Air Intelligence Center (NAIC). Conducted HRR algorithm maturation development & demonstration activities, and develop risk assessment and risk mitigation efforts to increase database fidelity.
- (U) \$461** Continued development and demonstration of other promising air-to-ground and air-to-air identification techniques for reduced battlefield fratricide and enhanced mission performance, including the Enhanced Recognition and Sensing Laser Radar (ERASER) program (EO based).
- (U) \$5,663** Continued Laser Vision Phase I to demonstrate 2-D eyesafe laser imaging (ERASER) technology on an operational fighter targeting pod.

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 2002
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
04 - Demonstration and Validation	0603742F Combat Identification Technology	2597
(U) <u>A. Mission Description Continued</u>		
(U) <u>FY 2001 (\$ in Thousands) Continued</u>		
(U) \$320	Funded required AIMS Program Office support of configuration control of Mark XII systems and next generation IFF equipment integration with current IFF (Mode IV) capabilities.	
(U) \$1,042	Provided for CID Integrated Management Team and other engineering support for integration and management of Air Force CID programs.	
(U) \$517	Conducted CID related studies/demos, including those directed by the Joint Staff and OSD, to define higher fidelity requirements, wring out Tactics Techniques, and Procedures (TTPs) as they apply to new technologies, and otherwise analyze ways to increase warfighter's CID capabilities.	
(U) \$10,497	Total	
(U) <u>FY 2002 (\$ in Thousands)</u>		
(U) \$3,141	Continue the HRR synthetic target database development in conjunction with NAIC. Implement risk reduction measures to increase the fidelity of the HRR database and prepare to transition database management/maintenance from the lab environment to a SPO. This transition is planned to occur at the end of FY03.	
(U) \$6,111	Continue development and demonstration of promising air-to-ground and air-to-air identification techniques for reduced battlefield fratricide and enhanced mission performance. Transition program candidates include the continued development and integration of ERASER/Laser Vision, begin baselining associated EO/ATC (Automatic Target Cueing)/ATR (Automatic Target Recognition) capability, begin Multi Vision military utility assessments/trade study to define a transition roadmap for the Joint Airborne Night Navigation and Attack (JOANNA) and related technologies, and continue to mature/harden camera technologies for flight environments. Potential other candidates could include the Air-to-Ground Imaging (AGRI) technology.	
(U) \$777	Fund AIMS Program Office support of Mark XII systems to include next generation IFF equipment integration, including Mode V documentation and individual IFF system/box certification.	
(U) \$825	Provide for CID Integrated Management Team and other engineering support for integration and management of Air Force CID programs.	
(U) \$555	Conduct CID related studies/demos and conferences. Studies/demos will include those directed by the Joint Staff and OSD, to define higher fidelity requirements, wring out Tactics Techniques, and Procedures (TTPs) as they apply to new technologies, and otherwise analyze ways to increase warfighter's CID capabilities.	
(U) \$11,409	Total	
Project 2597	Page 2 of 7 Pages	Exhibit R-2 (PE 0603742F)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 2002			
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT			
04 - Demonstration and Validation	0603742F Combat Identification Technology	2597			
(U) <u>A. Mission Description Continued</u>					
(U) <u>FY 2003 (\$ in Thousands)</u>					
(U) \$3,348	Continue the HRR synthetic target database development in conjunction with NAIC. Implement risk reduction to increase the fidelity of the HRR database and complete the transition of database management/maintenance from the lab environment to a SPO.				
(U) \$6,921	Continue development and demonstration of promising air-to-ground and air-to-air identification techniques for reduced battlefield fratricide and enhanced mission performance. Transition program candidates including the continued development and integration of ERASER/Laser Vision, continue baselining associated EO/ATC (Automatic Target Recognition) capability, continue Multi-Vision military utility assessments/trade study to define a transition roadmap for the Joint Airborne Night Navigation and Attack (JOANNA) and related technologies, and continue to mature/harden camera technologies for flight environments. Potential other candidates could include the Air-to-Ground Imaging (AGRI) and vibration exploitation technologies.				
(U) \$783	Fund AIMS Program Office support of Mark XII systems to include next generation IFF equipment integration, including Mode V documentation and individual IFF system/box certification.				
(U) \$861	Provides for the CID Integrated Management Team and other engineering support necessary for management of CID efforts.				
(U) \$521	Conduct CID related studies/demos and conferences. Studies/demos will include those directed by the Joint Staff and OSD, to define higher fidelity requirements, wring out Tactics Techniques, and Procedures (TTPs) as they apply to new technologies, and otherwise analyze ways to increase warfighter's CID capabilities.				
(U) \$12,434	Total				
(U) <u>B. Budget Activity Justification</u>					
This program is in Budget Activity 4 - The PE includes advanced technology demonstrations that help transition technologies from laboratory to operational use.					
(U) <u>C. Program Change Summary (\$ in Thousands)</u>					
		<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Total Cost</u>
(U) Previous President's Budget		10,933	11,523	12,464	
(U) Appropriated Value		10,933	11,523		
(U) Adjustments to Appropriated Value					
a. Congressional/General Reductions			-109		
b. Small Business Innovative Research		-335			
c. Omnibus or Other Above Threshold Reprogram					
d. Below Threshold Reprogram					
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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE February 2002	
BUDGET ACTIVITY 04 - Demonstration and Validation					PE NUMBER AND TITLE 0603742F Combat Identification Technology					PROJECT 2597	
(U) C. Program Change Summary (\$ in Thousands) Continued											
					<u>FY 2001</u>		<u>FY 2002</u>		<u>FY 2003</u>		<u>Total Cost</u>
	e. Rescissions										
					-101		-5				
(U)	Adjustments to Budget Years Since FY 2002 PBR										
									-30		
(U)	Current Budget Submit/FY 2003 PBR										
					10,497		11,409		12,434		TBD
(U)	<u>Significant Program Changes:</u>										
	No significant program changes.										
(U) D. Other Program Funding Summary (\$ in Thousands)											
		<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>		<u>Total Cost</u>
		<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>		
(U)	None	0	0	0	0	0			0		0
(U) E. Acquisition Strategy											
	The High Range Resolution (HRR) database development program was awarded under a competitive bid process. Other combat identification efforts in project 2597 focus on developing and demonstrating the most promising Air-to-Ground Combat ID techniques and were contracted for under a competitive Request For Proposal (RFP) process. Laser Vision was awarded utilizing Other Transaction Agreement (OTA)s, which utilize the same competitive process of Request for Proposal (RFP), proposal submittal and negotiation of costs prior to award. FY03 activities are a continuation of FY02 efforts.										
(U) F. Schedule Profile											
				<u>FY 2001</u>			<u>FY 2002</u>			<u>FY 2003</u>	
				1	2	3	4	1	2	3	4
(U)	1. (U) HRR Platform Suite Efforts										
(U)	DT&E Completion										
				*							
(U)	OT&E Completion										
						*					
(U)	2. (U) HRR Classifier Dev/Qual										
(U)	Denied Target Process Validation										
								X			
(U)	Threat Target Build										
						*	*	X	X	X	X
(U)	AFRL Target Build										
						*	*	X	X	X	X
(U)	Stores Configuration Assessment										
(U)	Data Collection Complete										
								X			
Project 2597				Page 4 of 7 Pages				Exhibit R-2 (PE 0603742F)			

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BUDGET ACTIVITY					PE NUMBER AND TITLE					PROJECT			
04 - Demonstration and Validation					0603742F Combat Identification Technology					2597			
(U) <u>F. Schedule Profile Continued</u>													
		<u>FY 2001</u>				<u>FY 2002</u>				<u>FY 2003</u>			
		1	2	3	4	1	2	3	4	1	2	3	4
(U)	Synthesis Production						X						
(U)	Unknown Target Process												
(U)	Initial Assessment			*									
(U)	Transition Effort					*	X	X	X	X	X	X	X
(U)	3. (U) ERASER (technology development)												
(U)	Flight Demo of 1.06 micron system	*											
(U)	4. (U) LASER VISION (flt test of ERASER technology)												
(U)	System Integration & Ground Tests	*											
(U)	Flight Demo with Targeting Pod(s) & Analysis	*	*	*	*								
(U)	Start EO/ATC/ATR baselining effort												X
(U)	Integration Activity					*	X	X	X	X	X	X	X
(U)	Camera Development		*	*	*	*	X	X	X	X	X	X	
(U)	5. (U) MULTI VISION TRADE STUDY						X	X	X	X			
	* denotes completed events												
	X denotes planned events												

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2002				
BUDGET ACTIVITY					PE NUMBER AND TITLE			PROJECT			
04 - Demonstration and Validation					0603742F Combat Identification Technology			2597			
(U) A. Project Cost Breakdown (\$ in Thousands)											
						<u>FY 2001</u>		<u>FY 2002</u>		<u>FY 2003</u>	
(U)	Analysis/Modeling and Simulation, Studies, Plans and Reports					857		555		521	
(U)	Data Synthesis, Algorithm Development, Database Support					2,494		3,141		3,348	
(U)	Hardware/Software and Prime Mission Product Development					3,083		6,111		6,921	
(U)	IFF Equip Config Control, Certification & Integration Support					320		777		783	
(U)	CID Training, Travel, & Operations					1,734		825		861	
(U)	Flight Test					2,009		0		0	
(U)	Total					10,497		11,409		12,434	
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)											
(U) Performing Organizations:											
	<u>Contractor or Government</u>	<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Performing Activity</u>	<u>Project Office</u>	<u>Total Prior to FY 2001</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Activity</u>	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>						
	<u>Product Development Organizations</u>										
	Raytheon Co, El Segundo CA	CPFF	Nov 98	12,625	12,625	0	900	852	0	Continuing	TBD
	Veridian (Veda) Dayton, OH	CPFF	Aug 98	13,000	13,000	0	400	198	0	Continuing	TBD
	Simulation Support, Inc.	CP	May 99	330	330	0	0	0	0	330	330
	National Air Intel Center	AF616	Annually	3,329	3,329	3,329	0	0	0	0	3,329
	Northrop Grumman Corp	CPFF	Aug 93	2,270	2,270	1,956	0	0	0	Continuing	TBD
	ERASER-Raytheon, Plano TX	CPFF	Dec 97	5,532	5,532	1	461	990	0	Continuing	TBD
	Raytheon Co, El Segundo	OTA	Mar 00	1,100	1,100	0	150	1,319	725	Continuing	TBD
	Lockheed Martin, Orlando	OTA	Mar 00	1,100	1,100	0	150	1,320	0	Continuing	TBD
	Northrup Grumman, Rolling Meadows, IL	OTA	Mar 00	1,100	1,100	0	150	1,320	0	Continuing	TBD
	Demaco	CPFF	Aug 94	9,004	9,004	6,604	0	0	0	0	6,604
Project 2597											

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE
04 - Demonstration and Validation										February 2002
BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT	
04 - Demonstration and Validation				0603742F Combat Identification Technology					2597	
(U) Performing Organizations Continued:										
<u>Product Development Organizations</u>										
SAIC (Demaco, Inc)	CPFF	May 99	2,210	2,210	0	800	495	0	Continuing	TBD
Cyberdynamics	CPFF	May 99	2,112	2,112	0	10	0	0	Continuing	TBD
AIMS Program Office	MIPR	Annual	N/A	N/A	634	320	723	772	Continuing	TBD
Wright Laboratory (Camera & ATR development)	MIPR	Jan 01	N/A	N/A	0	2,000	1,791	3,731	Continuing	TBD
Wright Laboratory (LV)	MIPR	N/A	N/A	N/A	0	1,353	0	2,494	Continuing	TBD
<u>Support and Management Organizations</u>										
USAF Combat ID IMT and Engineering Support	Various	N/A	N/A	N/A	2,850	1,734	834	1,374	Continuing	TBD
Wright Laboratory (HRR)	MIPR	N/A	4,000	4,000	2,332	60	70	3,338	Continuing	TBD
FT Belvoir	MIPR	N/A	N/A	N/A	0	0	0	0	0	0
<u>Test and Evaluation Organizations</u>										
3246th Test Wing, Eglin AFB, FL	Mixed, CPF,	N/A	3,769	3,769	2,319	1,770	1,497	0	Continuing	TBD
544th Range Group, Nellis AFB, NV										
412 Test Wing, Edwards AFB	MIPR	N/A	1,605	1,605	0	239	0	0	Continuing	TBD
					<u>Total Prior to FY 2001</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Subtotals</u>										
Subtotal Product Development					12,524	6,694	9,008	7,722	TBD	TBD
Subtotal Support and Management					5,182	1,794	904	4,712	TBD	TBD
Subtotal Test and Evaluation					2,319	2,009	1,497	0	TBD	TBD
Total Project					20,025	10,497	11,409	12,434	TBD	TBD

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 2002
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BUDGET ACTIVITY 04 - Demonstration and Validation	PE NUMBER AND TITLE 0603790F NATO Cooperative R&D	PROJECT NATO
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COST (\$ in Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
NATO Nato Coop R&D	5,217	5,560	4,355	4,684	4,713	4,788	4,818	0	0
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0

(U) **A. Mission Description**
 These funds will be used to help implement international cooperative research, development, and acquisition (ICRD&A) agreements with North Atlantic Treaty Organization (NATO) member states and major non-NATO allies (Argentina, Australia, Egypt, Israel, Japan, Jordan, and Rep. of Korea (South Korea)). The program implements the provisions of Title 10 U.S. Code, Section 2350a on NATO Cooperative Research and Development (R&D). The program was established to improve cooperation among NATO nations, and later major non-NATO allies, in research, development, and acquisition. The legislation authorized funds to significantly improve United States (US) and allied conventional defense capabilities by leveraging the best defense technologies, eliminating costly duplication of R&D efforts, accelerating the availability of defense systems, and promoting US and allied interoperability or commonality. The program will be reported as required by Title 10 U.S. Code, Section 2350a(f). This program element funds the implementation of Air Force ICRD&A agreements in (1) Basic Research (2) Applied Research (3) Advanced Technology Development (4) Demonstration and Validation (5) Engineering and Manufacturing Development and (6) RDT&E Management Support.

(U) **FY 2001 (\$ in Thousands)**

(U) \$350 Air Command, Control, Communications and Intelligence (C3I) Capabilities (Electronic Systems Center (ESC)/ NATO Consultation, Command, and Control (C3) Organization) - Planned cooperative project to develop an operationally robust interface between the US Contingency Theater Automated Planning System/Theater Battle Management Core System (CTAPS/TBMCS) and NATO Initial Combined Air Operations Center (CAOC) Capability (ICC) as well as the future NATO Air Command and Control System (ACCS). This cooperative R&D effort will support air campaign planning and execution for joint and combined air operations. In FY01, the scope of work to be accomplished includes advanced R&D into shared data environment, developing a concept of operation for the transfer of control between national and NATO Command, Control, Communications, Computers and Intelligence (C4I) systems without interrupting combat operations; and the extension of a middle-ware/translator product needed for the successful prosecution of a combined/joint air operation.

(U) \$279 Anthropometric Accommodations in Crew Systems (Air Force Research Lab (AFRL)/ The Netherlands) - Ongoing cooperative project to establish: (a), a collection of three-dimensional (3-D) anthropometric data which accurately and consistently describes the variability of men and women in both Europe and the US; (b), high quality methods for accommodation and interoperability assessment of crew systems; and (c), methods to assure accommodation and interoperability are achieved in the design process. In FY01, US and Dutch anthropometric data

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE
		February 2002
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
04 - Demonstration and Validation	0603790F NATO Cooperative R&D	NATO
(U) <u>A. Mission Description Continued</u>		
(U) <u>FY 2001 (\$ in Thousands) Continued</u>		
	collection was completed. Data processing is ongoing. The first phase of postural studies have been completed; further postural data collection is ongoing.	
(U) \$400	Advanced Transmission Language and Allocation of New Technology for International Communication and Proliferation of Allied Waveforms (ATLANTIC PAW) (AFRL/ France, Germany, UK) - Ongoing cooperative project to develop a common waveform syntax allowing for joint allied communications that will be demonstrated on programmable radio systems in each of the participating nations. In FY01, the waveform interpreter design has commenced, and initial specifications of the waveform language are being developed. Preliminary testing of portions of the system components is being performed to mitigate integration risks. Activities are beginning to address the shortfalls in tool capability.	
(U) \$500	Coalition Aerial Surveillance And Reconnaissance (CAESAR) (ESC/ Canada, France, Germany, Italy, Norway, UK) - Planned cooperative project to develop and evaluate technologies for the integration of diverse Ground Moving Targeting Indicator (GMTI)/Synthetic Aperture Radar (SAR) platforms to promote interoperability amongst multiple participants to support coalition warfare operations. The project will enable all participants to collaboratively develop the architecture and interoperability framework, key interfaces, and formats needed to meet coalition warfare requirements. In FY01, this project will focus on developing interoperability amongst surveillance and reconnaissance assets of participating nations.	
(U) \$368	Coalition Command, Control and Communications (C3) Demonstration Environment (CC3DE) (AFRL/ Australia, Canada) - Ongoing cooperative project to improve the efficiency of future coalition operations capabilities through the development of interoperable C3. This project will initially explore the effective management of information system resources in a coalition environment. It will develop a management architecture for the coalition environment, and develop the tools to implement this architecture. In particular, ATM technology will be integrated into a B-ISDN in efforts to form a common international standard for networking. In FY01, the project is continuing to finalize the testbed setup between nations to verify operational compatibility. Integration of network management technologies is being applied as development progresses.	
(U) \$100	Cooperative Research and Development Efforts in Imaging Spectrometer Development (Arnold Engineering and Development Center (AEDC)/ Canada) - Ongoing cooperative project to pool the spatial and spectral advances of both the US and Canada to produce a hyperspectral infrared (IR) imaging spectrometer. This high-resolution sensor system will be capable of characterizing signatures of missiles and aircraft, and for identifying trace quantities of a broad spectrum of gases in the environment. In FY01, work continued to enhance the data acquisition and viewing software. Components for the brassboard system, including a commercial IR camera and an existing spectrometer, are being assembled and integrated.	
(U) \$500	Distributed Mission Training (DMT) Technologies (AFRL/ Canada) - Ongoing cooperative project to develop DMT technologies that will	
Project NATO	Page 2 of 23 Pages	Exhibit R-2 (PE 0603790F)

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BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
04 - Demonstration and Validation	0603790F NATO Cooperative R&D	NATO
(U) <u>A. Mission Description Continued</u>		
(U) <u>FY 2001 (\$ in Thousands) Continued</u>		
	enhance allied simulator based training of US and Canadian fighter aircrews and demonstrate proof of concept. DMT refers to a shared training environment comprised of live, virtual, and constructive simulations allowing warfighters to train individually or collectively at all levels of war. In FY01, the project is completing software conversion and rehost efforts, developing a DMT control station, initiating modernization enhancements and aircraft hardware/emulation integration to the CF-18 Multi-Task Training (MTT), and continuing visual research and development activities.	
(U) \$400	Effects of Ionization on Hydrocarbon-Air Combustion (AFRL/ UK) - This ongoing cooperative project is a joint effort in the research and development of high-speed liquid hydrocarbon fueled airbreathing propulsion technology. This will be accomplished by exploiting the benefits of weak ionization in enhancing the reactivity of hydrocarbon fuels. Plasma technology will be examined for its utility in improving ignition and piloting for hydrocarbon combustors. In FY01, laboratory experiments were conducted and results are being analyzed to validate and/or improve the existing kinetic model of ion-enhanced hydrocarbon combustion. Planning is underway for experiments to be conducted in the Air Force Research Lab scramjet test facility within the next two months. These tests will explore the effectiveness of several plasma torch designs and configurations.	
(U) \$200	Effects of the Ionosphere on C3I Systems (AFRL/ UK) - Ongoing cooperative project to leverage complementary ionospheric sensors and data to develop capabilities for timely warning of ionospheric disturbances that disrupt C3I systems. In FY01, a new sensing technique employing High Frequency (HF) ionosounding data to provide (advanced) forecasts of ionospheric disturbance conditions that will affect C3I systems and operations is being demonstrated; and HF radio wave propagation data and ionosphere total-electron-content (tomography) data is being used to validate the Space Weather concept for real-time specification of the in-theater battlespace environment affecting C3I systems and operations.	
(U) \$354	Engine Component Life Extension (AFRL/ Australia) - Planned cooperative project to develop life extension techniques and strategies that can be applied to advanced military engines. The engines involved include the US Air Force F100, -220, -229 and F101 and Australia's TF30, F404 and T700. Much of the technology will be generic and flow from one engine to another. In FY01, existing life prediction models will be evaluated to determine specific avenues for improvement, and identify gaps in material databases.	
(U) \$100	Flight Test Demonstration of Miniature Munitions Release from Internal Weapons Bay (AFRL/ Australia) - Ongoing cooperative project to validate separation simulation codes for the release of miniature munitions from internal weapons bays at both subsonic and supersonic airspeeds. The Royal Australian Air Force (RAAF) F-111G is the only available operational fighter/bomber, with an internal bay, capable of dropping internally carried munitions at subsonic and supersonic velocities. In FY01, flight testing was conducted and completed, including release of 16 small smart bomb shapes. Data reduction and analysis in ongoing, and will be compiled for a final report.	
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BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
04 - Demonstration and Validation	0603790F NATO Cooperative R&D	NATO
(U) <u>A. Mission Description Continued</u>		
(U) <u>FY 2001 (\$ in Thousands) Continued</u>		
(U) \$570	High Altitude Endurance Unmanned Aerial Vehicle (HAE UAV) Cooperative Analysis, Development and Operational Demonstration (Aeronautical Systems Center (ASC)/ Australia) - Ongoing cooperative project to demonstrate the Out of Continental United States (OCONUS) deployment capability of the US Global Hawk HAE UAV, advance surveillance technology and interoperability, and enhance operational utility assessments of the US HAE UAV Advanced Concept Technology Demonstration (ACTD). In FY01, the US deployed the Global Hawk to Australia, demonstrated, and is assessing the system's operational effectiveness in a maritime and littoral environment.	
(U) \$532	Integrated Tactical Aircraft Control (ITAC) Program (AFRL/ France) - Ongoing cooperative project to develop, integrate and demonstrate critical flight control and flight management technologies that enable cooperative flight operations of a package comprised of UCAVs. The cooperative control architecture enables management and control of an integrated strike package by the aircrews in the combat aircraft. In FY01, agent integration and development refinement will continue culminating in a world station based on real-time and real-time simulations. The measures of merit and performance metrics will be evaluated and refined. Baseline performance for autonomous, intelligent control will be established. System mechanization for a real-time, operator in the loop simulation will be initiated.	
(U) \$200	Tropospheric Refraction and Propagation Modeling for Airborne Surveillance Systems (formerly Refraction and Propagation Modeling for Microwave Systems) (AFRL/ Australia, UK) - Planned cooperative project to combine a low cost aircraft measurement platform for simultaneous measurement of refraction, and Airborne Warning And Control System (AWACS) radar signal strength reduction with parabolic equation methods of microwave propagation modeling for evaluation and prediction of refraction conditions. In FY01, testing and validation will be conducted to determine the adverse performance of microwave and infra-red systems that perform surveillance, communication, signal intelligence, and directed energy functions in electronic battlespace.	
(U) \$300	Scintillation Impacts on Communication and Navigation Systems (AFRL/ Australia) - Ongoing cooperative project will exchange data, deploy current sensors, develop improved sensors, and tailor current decision aids, including software, which relate to ionospheric phenomena and their effect on C3I systems. This project will provide the US critical access to data in regions of strategic interest in South East Asia and the South Pacific where large ionospheric disturbances routinely occur. In FY01, data collection is continuing and additional sites are being brought on-line; characterization of ionospheric disturbances in the region and assessment of their impacts on space-based navigation, communications and surveillance systems is being conducted. An intensive multiple-diagnostic measurement campaign is being performed during active scintillation periods to enhance our understanding of the physical mechanisms leading to the development of severe equatorial disturbances.	
(U) \$34	Space Radiation Sensors (AFRL/ UK) - Planned cooperative project to validate the performance of a key Air Force spacecraft instrument for the measurement of space environment radiation hazards. The instrument's capability of issuing real-time space hazard warnings will be tested	
Project NATO	Page 4 of 23 Pages	Exhibit R-2 (PE 0603790F)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 2002
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
04 - Demonstration and Validation	0603790F NATO Cooperative R&D	NATO
(U) <u>A. Mission Description Continued</u>		
(U) <u>FY 2001 (\$ in Thousands) Continued</u>		
	under a variety of conditions encountered in space aboard a joint US/UK satellite mission. In FY01, the team will develop the preliminary space radiation data base using the US and UK instruments. Final verification of the US instrument's calibration will be performed using the preliminary database.	
(U) \$30	Management and administrative support and travel.	
(U) \$5,217	Total	
(U) <u>FY 2002 (\$ in Thousands)</u>		
(U) \$493	Advanced Hybrid Propulsion Technologies (AHPT) (AFRL/ Japan) - This ongoing cooperative project is researching and exploring technologies for an advanced hybrid rocket engine propulsion system to increase the performance, safety and reliability of future tactical missiles. The technologies include liquid oxidizers, gas generator fuels, and flow control systems. This activity will enable the demonstration of a forward injected gas generator hybrid rocket engine with energy management. Sub-systems of the full-scale test hardware are being manufactured and assembled. Test planning for the full-scale tests is ongoing. In FY02, activities include study of hybrid ignition, completion of test components and their integration, test firings, data collection, data analysis, and final report generation.	
(U) \$100	Air C3I Capabilities (ESC/ NATO C3 Organization) - Planned cooperative project to develop a fieldable interface between the US CTAPS/TBMCS and NATO Initial CAOC (ICC) and the future NATO ACCS. This cooperative R&D effort will support air campaign planning and execution for joint and combined air operations. In FY02, work will focus on: (a), productizing the C2 interface between the then fielded systems; (b), harmonization of system data base structures as part of the shared data environment; and (c), evaluating and implementing the reuse of appropriate functional module.	
(U) \$584	ATLANTIC PAW (AFRL/ France, Germany, UK) - Ongoing cooperative project to develop a common waveform syntax allowing for joint allied communications that will be demonstrated on programmable radio systems in each of the participating nations. In FY02, the waveform interpreter design and the initial specifications of the waveform language will be completed, and rehosted on the US development equipment. The development environment will be completed and used for an international demonstration.	
(U) \$1,500	Coalition Aerial Surveillance And Reconnaissance (CAESAR) (ESC/ Canada, France, Germany, Italy, Norway, UK) - Planned cooperative project to develop and evaluate technologies for the integration of diverse Ground Moving Targeting Indicator (GMTI)/Synthetic Aperture Radar (SAR) platforms to promote interoperability amongst multiple participants to support coalition warfare operations. The project will enable all participants to collaboratively develop the architecture and interoperability framework, key interfaces, and formats needed to meet coalition warfare requirements. In FY02, this project will continue to focus on developing interoperability amongst surveillance and	
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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE
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BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
04 - Demonstration and Validation	0603790F NATO Cooperative R&D	NATO
(U) <u>A. Mission Description Continued</u>		
(U) <u>FY 2002 (\$ in Thousands) Continued</u>		
	reconnaissance assets of participating nations, and develop architecture and interoperability framework, key interfaces, and formats needed to meet coalition warfare requirements.	
(U) \$182	CC3DE (AFRL/ Australia, Canada) - Ongoing cooperative project to improve the efficiency of future coalition operations capabilities through the development of interoperable C3. This project will initially explore the effective management of information system resources in a coalition environment. It will develop a management architecture for the coalition environment, and develop the tools to implement this architecture. In particular, ATM technology will be integrated into a B-ISDN in efforts to form a common international standard for networking. In FY02, the project will continue to network management integration to completion. C3I applications will be tested to demonstrate the effectiveness of the developed network management capability.	
(U) \$250	Cooperative Research and Development Efforts in Imaging Spectrometer Development (AEDC/ Canada) - Ongoing cooperative project to pool the spatial and spectral advances of both the US and Canada to produce a hyperspectral infrared (IR) imaging spectrometer. This high-resolution sensor system will be capable of characterizing signatures of rockets and aircraft for drug interdiction and for identifying trace quantities of a broad spectrum of gases in the environment. In FY02, work will continue to enhance the data acquisition and viewing software. The brassboard system will be assembled and integrated. Portions will be ruggedized in preparation for field testing.	
(U) \$250	Distributed Mission Training (DMT) and Virtual Air Environment (VAE) Technologies (AFRL/ Australia) - Planned cooperative project to develop DMT and VAE technologies that will enhance allied simulator based training of US and Australian fighter aircrews and demonstrate proof of concept. DMT refers to a shared training environment comprised of live, virtual, and constructive simulations allowing warfighters to train individually or collectively at all levels of war. The Australian VAE program will establish a training capability for the Air Defence System using networked simulated and constructive forces. The cooperative project will merge efforts being conducted under these complementary programs. In FY02 the project will initiate efforts to (1) develop Australian F-18 multi-task trainers, (2) conduct visual perception and engineering research efforts to specify design requirements for ultra-high resolution visuals for DMT flight simulators, and (3) initiate collaborative long-haul networking and constructive forces development activities.	
(U) \$250	DMT Technologies (AFRL/ Canada) - Ongoing cooperative project to develop DMT technologies that will enhance allied simulator based training of US and Canadian fighter aircrews and demonstrate proof of concept. DMT refers to a shared training environment comprised of live, virtual, and constructive simulations allowing warfighters to train individually or collectively at all levels of war. In FY02, the project will complete development of a DMT control station, select and integrate a visual system to the CF-18 MTT, continue modernization enhancements and aircraft hardware/emulation integration to the CF-18 MTT, finalize joint operability test procedures, and continue visual research and development activities.	
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		February 2002
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04 - Demonstration and Validation	0603790F NATO Cooperative R&D	NATO
(U) <u>A. Mission Description Continued</u>		
(U) <u>FY 2002 (\$ in Thousands) Continued</u>		
(U) \$400	Engine Component Life Extension (AFRL/ Australia) - Planned cooperative project to develop life extension techniques and strategies that can be applied to advanced military engines. The engines involved include the US Air Force F100, -220, -229 and F101 and Australia's TF30, F404 and T700. Much of the technology will be generic and flow from one engine to another. In FY02, full-life engine parts will be examined using nondestructive evaluation (NDE) tools and destructive analysis to identify typical populations of crack-like damage; appropriate time-temperature-stress profiles will be developed to best simulate engine operating conditions; mechanical testing will be performed for use in developing improved fatigue crack growth algorithms; development of NDE techniques for characterization of residual stress profiles will begin; activities to address the shortfalls in life prediction capabilities will begin.	
(U) \$568	ITAC Program (AFRL/ France) - Ongoing cooperative project to develop, integrate and demonstrate critical flight control and flight management technologies that enable cooperative flight operations of a package comprised of UCAVs. The cooperative control architecture enables management and control of an integrated strike package by the aircrews in the combat aircraft. In FY02, real-time operator in the loop simulations will be conducted. Evaluation of a flight operations package will be performed to evaluate the robustness of ITAC. Interface control documents and software will be delivered. A joint, interactive demonstration, in which an operator can select levels of autonomy, performance and coordination, will be developed for demonstration in an international forum.	
(U) \$50	Tropospheric Refraction and Propagation Modeling for Airborne Surveillance Systems (formerly Refraction and Propagation Modeling for Microwave Systems) (AFRL/ Australia, UK) - Planned cooperative project to combine a low cost aircraft measurement platform for simultaneous measurement of refraction, and Airborne Warning And Control System (AWACS) radar signal strength reduction with parabolic equation methods of microwave propagation modeling for evaluation and prediction of refraction conditions. In FY02, testing and validation will continue to be conducted to determine the adverse performance of microwave and infra-red systems that perform surveillance, communication, signal intelligence, and directed energy functions in electronic battlespace.	
(U) \$300	Scintillation Impacts on Communication and Navigation Systems (AFRL/ Australia) - Ongoing cooperative project will exchange data, deploy current sensors, develop improved sensors, and tailor current decision aids, including software, which relate to ionospheric phenomena and their effect on C3I systems. This project will provide the US critical access to data in regions of strategic interest in South East Asia and the South Pacific where large ionospheric disturbances routinely occur. In FY02, data collection will be completed, and characterization of ionospheric disturbances in the region and assessment of their impacts on space-based navigation, communications and surveillance systems will be concluded.	
(U) \$100	Space Radiation Sensors (AFRL/ UK) - Planned cooperative project to validate the performance of a key Air Force spacecraft instrument for the measurement of space environment radiation hazards. The instrument's capability of issuing real-time space hazard warnings will be tested	
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04 - Demonstration and Validation	0603790F NATO Cooperative R&D	NATO
(U) <u>A. Mission Description Continued</u>		
(U) <u>FY 2002 (\$ in Thousands) Continued</u>		
	under a variety of conditions encountered in space aboard a joint US/UK satellite mission. In FY02, the project will begin the development of the final radiation database.	
(U) \$433	Strike Warrior (AFRL/ UK) - This planned cooperative project is to develop, demonstrate, and test interface technology and concepts for future advanced strike aircraft. It is a follow-on to the Vista Warrior project. The Strike Warrior project will increase the pilot's tactical capabilities with improvements in two related aspects of interface design. First, the interface hardware will be developed to enable better presentation of a larger variety of mission data. This will include large area cockpit displays linked with advanced interface technologies. Second, new approaches to real-time human engineering will be developed to allow the pilot to manage the new display capabilities and information. In FY02, the project will begin with an evaluation of an unmanned combat air vehicle operator's station.	
(U) \$100	Management and administrative support and travel.	
(U) \$5,560	Total	
(U) <u>FY 2003 (\$ in Thousands)</u>		
(U) \$358	ATLANTIC PAW (AFRL/ France, Germany, UK) - Ongoing cooperative project to develop a common waveform syntax allowing for joint allied communications that will be demonstrated on programmable radio systems in each of the participating nations. In FY03, the waveform interpreter design and the initial specifications of the waveform language will be completed, and rehosted on the US development equipment. The development environment will be completed and used for an international demonstration.	
(U) \$214	Cooperative Research and Development Efforts in Imaging Spectrometer Development (AEDC/ Canada) - Ongoing cooperative project to pool the spatial and spectral advances of both the US and Canada to produce a hyperspectral infrared (IR) imaging spectrometer. This high-resolution sensor system will be capable of characterizing signatures of rockets and aircraft for drug interdiction and for identifying trace quantities of a broad spectrum of gases in the environment. In FY03, work will continue to enhance the data acquisition and viewing software, instrument ruggedization will continue, and field testing will begin.	
(U) \$250	Distributed Mission Training (DMT) and Virtual Air Environment (VAE) Technologies (AFRL/ Australia) - Planned cooperative project to develop DMT and VAE technologies that will enhance allied simulator based training of US and Australian fighter aircrews and demonstrate proof of concept. DMT refers to a shared training environment comprised of live, virtual, and constructive simulations allowing warfighters to train individually or collectively at all levels of war. The Australian VAE program will establish a training capability for the Air Defence System using networked simulated and constructive forces. The cooperative project will merge efforts being conducted under these complementary programs. In FY03, the project will continue efforts to (1) develop Australian F-18 multi-task trainers, (2) conduct visual	
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BUDGET ACTIVITY 04 - Demonstration and Validation	PE NUMBER AND TITLE 0603790F NATO Cooperative R&D	
(U) <u>A. Mission Description Continued</u>		
(U) <u>FY 2003 (\$ in Thousands) Continued</u>		
	perception and engineering research efforts to specify design requirements for ultra-high resolution visuals for DMT flight simulators, and (3) initiate collaborative long-haul networking and constructive forces development activities.	
(U) \$500	E-3 Electronic Support Measures (ESM) Mission Data Tools Program (ESC/ NATO, France) - Planned cooperative project to develop improved mission data tools for the ESM system on the US, NATO, and French E-3 airborne warning and control system aircraft. The ESM system is a passive detection system that greatly enhances the aircraft surveillance capabilities through the detection, identification, and categorization of emitters. Cooperative development will preserve and enhance commonality, standardization, and interoperability. In FY03, alternatives will be analyzed, and development efforts will begin.	
(U) \$400	Engine Component Life Extension (AFRL/ Australia) - Planned cooperative project to develop life extension techniques and strategies that can be applied to advanced military engines. The engines involved include the US Air Force F100, -220, -229 and F101 and Australia's TF30, F404 and T700. Much of the technology will be generic and flow from one engine to another. In FY03, development of NDE techniques for characterization of residual stress profiles will conclude; activities to address the shortfalls in life prediction capabilities will conclude, and; the final report will be written.	
(U) \$400	Flight Test Demonstration of Miniature Munitions Release from Internal Weapons Bay Phase 2 (AFRL/ Australia) - Planned cooperative project to characterize the separation of asymmetric, less stable miniature munitions shapes from internal weapons bays at operational velocities. The Royal Australian Air Force (RAAF) F-111G is the only available operational fighter/bomber, with an internal bay, capable of dropping internally carried munitions at subsonic and supersonic velocities. Additionally, this project will examine emerging technologies for moderating the weapon separation aeroacoustic environment and collecting telemetry through miniature electronic systems rather than high-speed cameras. In FY03, the project team will conduct test planning and preparation, execute the testing, perform analyses, and document the results.	
(U) \$500	Integrated Tactical Aircraft Control (ITAC) Technology Validation (AFRL/ France) - Planned cooperative project to develop, demonstrate and validate flight control techniques and flight management concepts to enable cooperative flight operations of multiple unmanned aircraft. The project will demonstrate and validate core cooperative control technologies, developed during the ongoing ITAC Program, in realistic flight environments. Efforts will focus the core functions related to safety and authority. In FY03, configuration definition and development will be completed, and systems integration will begin.	
(U) \$500	Integrated Tactical Aircraft Control (ITAC) Autonomous Terminal-Area Operations (ATAO) Technology Development and Validation (AFRL/ France) - Planned cooperative project to develop technologies and software for autonomous launch, recovery, and taxi of multiple unmanned aerial vehicles safely and effectively within the terminal area operational infrastructure. In FY03, efforts related to system design	
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		PROJECT NATO
(U) <u>A. Mission Description Continued</u>		
(U) <u>FY 2003 (\$ in Thousands) Continued</u>		
	and specification development will continue.	
(U) \$150	Materials and Technologies for Reverse Saturable Absorption (AFRL/ Australia) - Planned cooperative project to develop and characterize platinum poly-yenes materials for possible incorporation in broadband optical limiters in the visible and near infra-red spectral regions for eye and sensor protection from laser device. In FY03, development, testing, and analyses will begin.	
(U) \$50	Novel G Protection for Fighter Pilots (AFRL/ Germany) - Planned cooperative project to develop improvements to the Libelle liquid-filled anti-G suit. Efforts will focus on improved relaxed G tolerance, incorporation of positive pressure breathing, improved high altitude protection, and revised anti-G training. In FY03, development work will begin on improved relaxed G tolerance, incorporation of positive pressure breathing, improved high altitude protection, and revised anti-G training.	
(U) \$100	Optical Sensor Protection Development and Evaluation (AFRL/ UK) - Planned cooperative project to develop and assess promising electro-optic protection materials, devices, and configurations for laser hazard and threat protection for eyes and sensors. In FY03, development, testing, and analyses will begin.	
(U) \$50	Spatial Disorientation Countermeasures (AFRL/ The Netherlands) - Planned cooperative project to evaluate the spatial disorientation research device and trainer, called DESDEMONA, and develop improvements. Efforts will focus on assessment of DESDEMONA relative to current simulators, development of night vision goggle and helmet mounted display interfaces, and development of revised training approaches. In FY03, the comparative assessment will be conducted; and the development of night vision goggle and helmet mounted display interfaces, and the development of revised training approaches, will begin.	
(U) \$750	Strike Warrior (AFRL/ UK) - This planned cooperative project is to develop, demonstrate, and test interface technology and concepts for future advanced strike aircraft. It is a follow-on to the Vista Warrior project. The Strike Warrior project will increase the pilot's tactical capabilities with improvements in two related aspects of interface design. First, the interface hardware will be developed to enable better presentation of a larger variety of mission data. This will include large area cockpit displays linked with advanced interface technologies. Second, new approaches to real-time human engineering will be developed to allow the pilot to manage the new display capabilities and information. In FY03, flight testing and trials will continue.	
(U) \$133	Management and administrative support and travel.	
(U) \$4,355	Total	
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<p>(U) <u>B. Budget Activity Justification</u> This PE is designated in Budget Activity 4 because most of the ICRD&A projects support specific systems, include all efforts necessary to evaluate integrated technologies in as realistic an operating environment as possible to assess the performance or cost reduction potential of advanced technology, and help expedite technology transition from the laboratory to operational use.</p>																																																															
<p>(U) <u>C. Program Change Summary (\$ in Thousands)</u></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:55%;"></th> <th style="text-align: right;"><u>FY 2001</u></th> <th style="text-align: right;"><u>FY 2002</u></th> <th style="text-align: right;"><u>FY 2003</u></th> <th style="text-align: right;"><u>Total Cost</u></th> </tr> </thead> <tbody> <tr> <td>(U) Previous President's Budget</td> <td style="text-align: right;">5,509</td> <td style="text-align: right;">5,616</td> <td style="text-align: right;">4,355</td> <td style="text-align: right;">0</td> </tr> <tr> <td>(U) Appropriated Value</td> <td style="text-align: right;">5,509</td> <td style="text-align: right;">5,616</td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Appropriated Value</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> a. Congressional/General Reductions</td> <td style="text-align: right;">-51</td> <td style="text-align: right;">-56</td> <td></td> <td></td> </tr> <tr> <td> b. Small Business Innovative Research</td> <td style="text-align: right;">-180</td> <td></td> <td></td> <td></td> </tr> <tr> <td> c. Omnibus or Other Above Threshold Reprogram</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> d. Below Threshold Reprogram</td> <td style="text-align: right;">-61</td> <td></td> <td></td> <td></td> </tr> <tr> <td> e. Rescissions</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Budget Years Since FY 2002 PBR</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) Current Budget Submit/FY 2003 PBR</td> <td style="text-align: right;">5,217</td> <td style="text-align: right;">5,560</td> <td style="text-align: right;">4,355</td> <td style="text-align: right;">TBD</td> </tr> </tbody> </table> <p>(U) <u>Significant Program Changes:</u> Change Summary Explanation: N/A</p>										<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Total Cost</u>	(U) Previous President's Budget	5,509	5,616	4,355	0	(U) Appropriated Value	5,509	5,616			(U) Adjustments to Appropriated Value					a. Congressional/General Reductions	-51	-56			b. Small Business Innovative Research	-180				c. Omnibus or Other Above Threshold Reprogram					d. Below Threshold Reprogram	-61				e. Rescissions					(U) Adjustments to Budget Years Since FY 2002 PBR					(U) Current Budget Submit/FY 2003 PBR	5,217	5,560	4,355	TBD
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<p>(U) <u>E. Acquisition Strategy</u> A principal goal of the NATO Cooperative R&D program is to effectively utilize the aggregate resources invested by the US and our allies in conventional defense R&D. This program element provides the critical funding incentive needed to pursue ICRD&A agreements and helps to (a) leverage USAF and allied resources through cost sharing and economies of scale; (b) exploit the best US and allied technologies for equipping coalition forces; (c) demonstrate areas of commonality or interoperability with our allies; and (d) accelerate the availability of defense technology and systems. Candidate projects are reviewed and approved by the USD(AT&L). An international agreement defining project objectives, responsibilities and costs is required prior to release of funds. To obtain these funds and ensure</p>																																																															
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BUDGET ACTIVITY 04 - Demonstration and Validation				PE NUMBER AND TITLE 0603790F NATO Cooperative R&D				PROJECT NATO				
(U) E. Acquisition Strategy Continued												
service commitment, projects are selected from existing or new RDT&E programs funded in the Future Years Defense Plan (FYDP). Project offices must show matching funds and contributions from associated program elements and equitable allied funding. As appropriate, funding responsibility for out-year requirements and follow-on efforts are transferred to the project office and associated program elements. Most contracts are awarded after full and open competition.												
(U) F. Schedule Profile												
		<u>FY 2001</u>				<u>FY 2002</u>				<u>FY 2003</u>		
	1	2	3	4	1	2	3	4	1	2	3	4
(U)	Effects of the Ionosphere on C3I Systems Project											
(U)	- Field demonstration of HF scintillation forecasting technique											
(U)	- Employ ionosphere sensor data to validate/expand support concept											
(U)	Strike Warrior Project											
(U)	- Project Agreement signed											
(U)	- Begin strike system simulations											
(U)	- Flight tests and trials											
(U)	HAE UAV (Global Hawk) Coop Analysis, Dev and Op Demo Project											
(U)	- System modification											
(U)	- Global Hawk deployment											
(U)	- Operational exercise											
(U)	- Project report											
(U)	Cooperative R&D Efforts in Imaging Spectrometer Development Project											
(U)	- Brassboard development											
(U)	- Brassboard checkout											
(U)	- Instrument design											
(U)	- Instrument fabrication											
(U)	- Lab instrument checkout											
(U)	- Prototype checkout											
(U)	- Instrument ruggedization											
(U)	- Field testing											
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(U) <u>F. Schedule Profile Continued</u>													
		<u>FY 2001</u>				<u>FY 2002</u>				<u>FY 2003</u>			
	1	2	3	4	1	2	3	4	1	2	3	4	
(U) Effects of Ionization on Hydrocarbon Combustion Project													
(U) - Complete reaction rate measurements		X											
(U) - Design plasma generator			X										
(U) - Begin updating computational tools			X	X									
(U) - Complete computational tools					X								
(U) - Begin combustion experiments					X	X	X						
(U) - Complete combustion experiments									X				
(U) - Data analysis and model validation									X				
(U) - Final report									X				
(U) Integrated Tactical Aircraft Control (ITAC) Program													
(U) - System design	X	X	X										
(U) - System mechanization		X	X	X									
(U) - Simulation and evaluation				X	X	X	X	X					
(U) - Joint demonstration preparation							X	X					
(U) - Joint demonstration									X				
(U) Distributed Mission Training (DMT) Technologies Project													
(U) - CF-18 software design	X	X											
(U) - Software rehost	X	X	X	X									
(U) - Instructor operator control station		X	X	X									
(U) - CF-18 modernization enhancements	X	X	X	X	X	X	X	X					
(U) - Visual display system/DMT control station					X	X	X	X					
(U) Anthropometric Accommodation in Crew Systems Project													
(U) - Conduct anthropometric survey	X	X	X	X									
(U) - Augmented reality assessments	X	X	X	X	X	X							
(U) - 3-D data reduction	X	X	X	X	X	X							
(U) - Compare live subject, computer model, and augmented reality result		X	X	X	X	X							

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE February 2002		
BUDGET ACTIVITY 04 - Demonstration and Validation					PE NUMBER AND TITLE 0603790F NATO Cooperative R&D					PROJECT NATO		
(U) <u>F. Schedule Profile Continued</u>												
		<u>FY 2001</u>				<u>FY 2002</u>				<u>FY 2003</u>		
	1	2	3	4	1	2	3	4	1	2	3	4
(U) - Comparison of data from The Netherlands with the US	X	X	X	X	X							
(U) - Complete final project documentation			X	X	X	X						
(U) Space Radiation Sensors Project												
(U) - Project Agreement signed				X								
(U) - Calibration Review				X	X	X						
(U) - Preliminary data base						X	X	X				
(U) - Verification of calibration								X	X			
(U) - Final data base										X	X	X
(U) Air C3I Project												
(U) - Project Agreement signed				X								
(U) - Scope work effort to achieve shared data environment					X							
(U) - Develop translator extensions					X							
(U) - US/NATO battle lab verification and development test						X						
(U) - Examine US/NATO Concept of operations in coalition environment								X				
(U) Coalition C3 Demonstration Environment Project												
(U) - Network management integration	X	X	X	X								
(U) - C3I application and integration demonstrations	X				X	X						
(U) ATLANTIC PAW Project												
(U) - Joint compliance testing	X											
(U) - Tool characterization	X	X	X									
(U) - Interpreter characterization/design			X	X	X	X						
(U) - Allied waveform coding						X						
(U) - Interop demo								X				
(U) Scintillation Impacts on Communication and Navigation Systems Project												
(U) - Implement real-time data collection at existing sites	X											
Project NATO												

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE February 2002			
BUDGET ACTIVITY					PE NUMBER AND TITLE					PROJECT			
04 - Demonstration and Validation					0603790F NATO Cooperative R&D					NATO			
(U) <u>F. Schedule Profile Continued</u>					<u>FY 2001</u>		<u>FY 2002</u>		<u>FY 2003</u>				
	1	2	3	4	1	2	3	4	1	2	3	4	
(U) - Deploy scintillation monitors	X	X											
(U) - Campaign/complete data collection start		X											
(U) - Correlate and calibrate data sets			X										
(U) - Characterize local disturbance climatology					X								
(U) - Develop regional forecast algorithms							X						
(U) - Report regional scintillation & tailored products for C3I sys								X					
(U) Tropospheric Refraction and Propagation Modeling for Airborne Surv Sys													
(U) - Test parabolic propagation model with real refraction data				X	X	X	X						
(U) - Aircraft measurements: validate extreme refraction cases				X	X	X	X						
(U) - Aircraft data reduction and analyses				X	X	X	X						
(U) - Validation propagation model for extreme cases						X	X	X					
(U) - Demonstrate model use with AWACS operation							X	X					
(U) - Final report								X					
(U) Engine Component Life Extension Project													
(U) - Project Agreement signed				X									
(U) - Engine Rotor Life Extension (ERLE) technical/economic studies				X									
(U) - Advanced life prediction methodologies for ERLE					X	X	X	X					
(U) - Advanced nondestructive inspection/evaluation technology						X	X	X	X				
(U) - Advanced manufacture concepts/ technical development for ERLE								X	X	X	X		
(U) - Final report												X	
(U) Flight Test Demo of Mini Munitions Release from Internal Weapons Bay													
(U) - Flight test	X												
(U) - Final reporting		X											
(U) Distributed Mission Training & Virtual Air Environment Technologies													

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE February 2002			
BUDGET ACTIVITY					PE NUMBER AND TITLE					PROJECT			
04 - Demonstration and Validation					0603790F NATO Cooperative R&D					NATO			
(U) <u>F. Schedule Profile Continued</u>													
		<u>FY 2001</u>				<u>FY 2002</u>				<u>FY 2003</u>			
	1	2	3	4	1	2	3	4	1	2	3	4	
(U)	- Project Agreement signed												
(U)	- F-18 software conversion												
(U)	- Software rehost												
(U)	- Visual research and display specification												
(U)	- Long-haul networking and force construction												
(U)	CAESAR Project												
(U)	- Project Agreement signed												
(U)	- Technical and operational coordination												
(U)	- Survey and assessments, Concepts of Operations												
(U)	- Tactics, techniques, procedures, measures of effectiveness/ perf												
(U)	- Identify info for CAESAR ground picture												
(U)	- Architecture development												
(U)	Advanced Hybrid Propulsion Technologies												
(U)	- Hybrid ignition study												
(U)	- Testing												
(U)	- Data analysis and final report												
(U)	E-3 Electronic Support Measures (ESM) Mission Data Tools Program												
(U)	- Project agreement signed												
(U)	- Alternatives analyses												
(U)	- Development												
(U)	Flight Test Demo Mini Munitions Release from Internal Weaps Bay Ph												
	2												
(U)	- Project agreement signed												
(U)	- Test planning and preparation												
(U)	- Test conduct and analyses												
(U)	- Test report												
Project NATO					Page 16 of 23 Pages					Exhibit R-2 (PE 0603790F)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE February 2002		
BUDGET ACTIVITY					PE NUMBER AND TITLE					PROJECT		
04 - Demonstration and Validation					0603790F NATO Cooperative R&D					NATO		
(U) <u>F. Schedule Profile Continued</u>												
		<u>FY 2001</u>				<u>FY 2002</u>				<u>FY 2003</u>		
	1	2	3	4	1	2	3	4	1	2	3	4
(U)	Integrated Tactical Aircraft Control (ITAC) Technology Validation											
(U)	- Project amendment signed				X							
(U)	- Configuration definition and development				X	X	X	X	X			
(U)	- Systems integration									X	X	X
(U)	ITAC Autonomous Terminal-Area Ops (ATAO) Technology Dev and Valid											
(U)	- Project amendment signed						X					
(U)	- System design and specification development							X	X	X	X	X
(U)	Materials and Technologies for Reverse Saturable Absorption											
(U)	- Project agreement signed							X				
(U)	- Development, testing, and analyses								X	X	X	X
(U)	Novel G Protection for Fighter Pilots											
(U)	- Project agreement signed							X				
(U)	- Improvements development								X	X	X	X
(U)	Optical Sensor Protection Development and Evaluation											
(U)	- Project agreement signed										X	
(U)	- Development, testing, and analyses											X
(U)	Spatial Disorientation Countermeasures											
(U)	- Project agreement signed							X				
(U)	- Comparative assessment								X	X	X	X
(U)	- Development of improvements									X	X	X

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE February 2002		
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT		
04 - Demonstration and Validation	0603790F NATO Cooperative R&D	NATO		
(U) <u>A. Project Cost Breakdown (\$ in Thousands)</u>				
		<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>
(U) Advanced Hybrid Propulsion Technologies (AHPT)		0	493	0
(U) Air Command, Control, Communications, and Intelligence (C3I) Capabilities		350	100	0
(U) Anthropometric Accommodation in Crew Systems		279	0	0
(U) Advanced Transmission Language and Allocation of New Technology for International Communication and Proliferation of Allied Waveforms (ATLANTIC PAW)		400	584	358
(U) Coalition Aerial Surveillance And Reconnaissance (CAESAR)		500	1,500	0
(U) Coalition Command, Control, and Communications (C3) Demo Environment (CC3DE)		368	182	0
(U) Cooperative Research and Development (R&D) Efforts in Imaging Spectrometer Development		100	250	214
(U) Distributed Mission Training (DMT) and Virtual Air Environment (VAE) Technologies		0	250	250
(U) Distributed Mission Training (DMT) Technologies		500	250	0
(U) E-3 Electronic Support Measures (ESM) Mission Data Tools Program		0	0	500
(U) Effects of Ionization on Hydrocarbon-Air Combustion		400	0	0
(U) Effects of the Ionosphere on Command, Control, Communications, and Intelligence (C3I) Systems		200	0	0
(U) Engine Component Life Extension		354	400	400
(U) Flight Test Demonstration of Miniature Munitions Release from Internal Weapons Bay		100	0	0
(U) Flight Test Demonstration of Miniature Munitions Release from Internal Weapons Bay Phase 2		0	0	400
(U) High Altitude Endurance Unmanned Aerial Vehicle (HAE UAV) (Global Hawk) Cooperative Analysis, Development, and Operational Demonstration		570	0	0
(U) Integrated Tactical Aircraft Control (ITAC) Program		532	568	0
(U) ITAC Technology Validation		0	0	500
(U) ITAC Autonomous Terminal-Area Operations (ATAO) Technology Development and Validation		0	0	500
(U) Materials and Technologies for Reverse Saturable Absorption		0	0	150
(U) Novel G Protection for Fighter Pilots		0	0	50
(U) Optical Sensor Protection Development and Evaluation		0	0	100
(U) Tropospheric Refraction and Propagation Modeling for Airborne Surveillance Systems (formerly Refraction and Propagation Modeling for Microwave Systems)		200	50	0
Project NATO				

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2002			
BUDGET ACTIVITY			PE NUMBER AND TITLE				PROJECT			
04 - Demonstration and Validation			0603790F NATO Cooperative R&D				NATO			
(U) <u>A. Project Cost Breakdown (\$ in Thousands) Continued</u>										
					<u>FY 2001</u>			<u>FY 2002</u>		<u>FY 2003</u>
(U)	Scintillation Impacts on Communication and Navigation Systems				300			300		0
(U)	Space Radiation Sensors				34			100		0
(U)	Spatial Disorientation Countermeasures				0			0		50
(U)	Strike Warrior				0			433		750
(U)	Management and administrative support and travel				30			100		133
(U)	Total				5,217			5,560		4,355
Complete information regarding the use of NATO Cooperative R&D funds is not available for all proposed agreements, since some are still being negotiated or were recently signed. In addition, information on the use of future funding for continuing agreements is not available in all instances because the funds are used as needed to supplement a project office's related 6.1 through 6.5 RDT&E appropriations.										
(U) <u>B. Budget Acquisition History and Planning Information (\$ in Thousands)</u>										
(U) <u>Performing Organizations:</u>										
<u>Contractor or</u>	<u>Contract</u>									
<u>Government</u>	<u>Method/Type</u>	<u>Award or</u>	<u>Performing</u>	<u>Project</u>						
<u>Performing</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Activity</u>	<u>Office</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Activity</u>	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>	<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Complete</u>	<u>Program</u>
<u>Product Development Organizations</u>										
Lockheed Martin Colorado Springs, CO	CPAF	Oct 95			0	350	0		Continuing	TBD
Sytronics Dayton, OH	CPFF	Apr 98			600	300	0	0	Continuing	TBD
Boston College Boston, MA	CFSR	Mar 97			155	0	0	0	Continuing	TBD
RADEX Bedford, MA	CPFF	Mar 97			920	50	0	0	Continuing	TBD
Pacific Sierra Research Santa Monica, CA	CPFF	Mar 97			60	0	0	0	Continuing	TBD
CPI Fairfax, VA	CPFF	Mar 97			180	0	0	0	Continuing	TBD
U of Massachusetts Lowell, MA	CR	Apr 97			170	100	0	0	Continuing	TBD
Project NATO					Page 19 of 23 Pages			Exhibit R-3 (PE 0603790F)		

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE	
							February 2002	
BUDGET ACTIVITY			PE NUMBER AND TITLE				PROJECT	
04 - Demonstration and Validation			0603790F NATO Cooperative R&D				NATO	
(U) <u>Performing Organizations Continued:</u>								
<u>Product Development Organizations</u>								
KEO Consultants Brookline, MA	CPFF	Mar 97	220	0	0	0	Continuing	TBD
NW Research Associates Bellevue, WA	CPFF	Apr 97	110	50	0	0	Continuing	TBD
Visdyne Inc.	CPFF	Sep 00	400	0	0	0	Continuing	TBD
Innovative Scientific Solutions Inc.	CPFF	Sep 00	0	400	0	0	Continuing	TBD
U of Texas Austin, TX	CPFF	May 97	25	0	0	0	Continuing	TBD
Applied Research Lab, U of Texas Austin, TX	CPFF	May 97	105	0	0	0	Continuing	TBD
Lockheed Martin Orlando, FL	CPFF	Sep 96	913	0	0	0	Continuing	TBD
Raytheon TI Systems	CPFF	Dec 97	683	0	0	0	Continuing	TBD
Boeing Seattle, WA	CPFF	Sep 98	260	300	600	0	Continuing	TBD
UES, Inc Dayton, OH	CPFF	Oct 97	100	0	0	0	Continuing	TBD
NOAA/ATDD Oak Ridge, TN	MIPR	Oct 97	0	0	0	0	Continuing	TBD
Pratt & Whitney West Palm Beach, FL	CPFF	Jun 98	1,000	0	0	0	Continuing	TBD
AFRL WPAFB, OH	TBD	TBD	0	297	816	2,252	Continuing	TBD
Boeing Long Beach, CA	CPFF	Jul 98	265	0	0	0	Continuing	TBD
Boeing Seattle, WA	CPFF	Mar 98	200	0	0	0	Continuing	TBD
Lockheed Marietta, GA	CPFF	Oct 98	325	0	0	0	Continuing	TBD
Northrop Hawthorne, CA	CPFF	Oct 98	50	0	0	0	Continuing	TBD
Selectech Dayton, OH	CPFF	Feb 98	50	0	0	0	Continuing	TBD
Boeing St Louis, MO	CPFF	Mar 00	0	0	0	0	Continuing	TBD
University of South Carolina	CPFF	Apr 00	0	0	0	0	Continuing	TBD
Boeing St Louis, MO	CPIF	Apr 99	0	0	0	0	Continuing	TBD

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE	
							February 2002	
BUDGET ACTIVITY			PE NUMBER AND TITLE				PROJECT	
04 - Demonstration and Validation			0603790F NATO Cooperative R&D				NATO	
(U) <u>Performing Organizations Continued:</u>								
<u>Product Development Organizations</u>								
Thiokol Corp Elkton, MD	CPFF	Nov 97	0	0	0	0	Continuing	TBD
Raytheon Mesa, AZ	CPFF	Jul 97	0	500	1,000	0	Continuing	TBD
CPI Annandale, VA	CPFF	TBD	0	200	0	0	Continuing	TBD
U of Colorado Boulder, CO	CPFF	TBD	0	100	0	0	Continuing	TBD
Boston College Newton, MA	CPFF	TBD	0	50	0	0	Continuing	TBD
Radex	CPFF	Feb 01	0	135	0	0	Continuing	TBD
Applied Physics Lab Laurel, MD	MIPR	May 00	0	0	0	0	Continuing	TBD
Boston College Boston, MA	CPFF	TBD	0	40	0	0	Continuing	TBD
Radex Bedford, MA	CPFF	TBD	0	0	0	0	Continuing	TBD
U of Mass Lowell, MA	CR	TBD	0	45	0	0	Continuing	TBD
Scion Associates Seattle, WA	CPFF	TBD	0	65	0	0	Continuing	TBD
SRI, Int'l Menlo Park, CA	CPFF	TBD	0	40	200	0	Continuing	TBD
AFRL Eglin AFB, FL	TBD	TBD	0	0	0	400	Continuing	TBD
AFRL Hanscom AFB, MA	TBD	TBD	0	300	100	0	Continuing	TBD
AFRL Mesa, AZ	TBD	TBD	0	0	0	250	Continuing	TBD
AFRL Rome, NY	TBD	TBD	1,250	1,070	194	300	Continuing	TBD
AFMC Hanscom AFB, MA	TBD	TBD	0	0	0	500	Continuing	TBD
AFMC WPAFB, OH	TBD	TBD	0	400	0	0	Continuing	TBD
<u>Support and Management Organizations</u>								
AFRL Hanscom AFB, MA			135	75	1,850	0	Continuing	TBD
AFRL WPAFB, OH			5	25	220	153	Continuing	TBD
45th Space Wing Patrick AFB, FL	AF 185	May 95	5	0	0	0	Continuing	TBD
AFRL Eglin AFB, FL			50	0	0	0	Continuing	TBD
AFMC WPAFB, OH			0	0	0	286	Continuing	TBD
Pender Technology, TN	CR	Oct 97	90	45	0	0	Continuing	TBD

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2002		
BUDGET ACTIVITY 04 - Demonstration and Validation				PE NUMBER AND TITLE 0603790F NATO Cooperative R&D			PROJECT NATO		
(U) <u>Performing Organizations Continued:</u>									
<u>Support and Management Organizations</u>									
Veridian Dayton, OH				145	75	75	0	Continuing	TBD
<u>Test and Evaluation Organizations</u>									
Air Force Development Test Center, FL		PO	Jan 98	54	0	0	0	Continuing	TBD
Sverdrup Technology, Inc TN		CPAF	Sep 95	1,443	205	205	0	Continuing	TBD
Naval Air Warfare CenterPoint Mugu, CA		MIPR	Jan 99	40	0	0	0	Continuing	TBD
Aeronautical Systems Center WPAFB				0	0	300	0	Continuing	TBD
Fora Laser System		PO	Nov 97	100	0	0	0	Continuing	TBD
Arnold Engineering Development Center, TN		TBD	TBD	0	0	0	214	Continuing	TBD
(U) <u>Government Furnished Property:</u>									
<u>Contract</u>									
<u>Item</u>	<u>Method/Type</u>	<u>Award or</u>	<u>Delivery</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Description</u>	<u>Vehicle</u>	<u>Obligation</u>	<u>Date</u>	<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Complete</u>	<u>Program</u>
<u>Product Development Property</u>									
None									
<u>Support and Management Property</u>									
None									
<u>Test and Evaluation Property</u>									
Fora laser system		PO	Nov 97	Jan 98	147	0		0	147

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)				DATE February 2002		
BUDGET ACTIVITY		PE NUMBER AND TITLE			PROJECT	
04 - Demonstration and Validation		0603790F NATO Cooperative R&D			NATO	
		<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>
		<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Complete</u>
						<u>Total</u>
	<u>Subtotals</u>					<u>Program</u>
	Subtotal Product Development	8,041	4,792	2,910	3,702	TBD
	Subtotal Support and Management	430	220	2,145	439	TBD
	Subtotal Test and Evaluation	1,784	205	505	214	TBD
	Total Project	10,255	5,217	5,560	4,355	TBD

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 2002	
BUDGET ACTIVITY 04 - Demonstration and Validation				PE NUMBER AND TITLE 0603791F International Space Cooperative R&D				PROJECT 5035	
COST (\$ in Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
5035 Intl Space Coop R&D	0	0	643	657	661	692	697	0	0
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0
<p>In FY 2003, this is a new PE. In FY 2003, from PE 0603790F, 64NATO, NATO Coop R&D, space-related efforts transferred to PE 0603791F, 645035, Intl Space Coop R&D, in order to clearly identify space-related projects and funding.</p> <p>(U) <u>A. Mission Description</u> These funds will be used to help implement space-related international cooperative research, development, and acquisition (ICRD&A) agreements with North Atlantic Treaty Organization (NATO) member states and major non-NATO allies (Argentina, Australia, Egypt, Israel, Japan, Jordan, and Rep. of Korea (South Korea)). The program implements the provisions of Title 10 U.S. Code, Section 2350a on NATO Cooperative Research and Development (R&D). The program was established to improve cooperation among NATO nations, and later major non-NATO allies, in research, development, and acquisition. The legislation authorized funds to significantly improve United States (US) and allied conventional defense capabilities by leveraging the best defense technologies, eliminating costly duplication of R&D efforts, accelerating the availability of defense systems, and promoting US and allied interoperability or commonality. The program will be reported as required by Title 10 U.S. Code, Section 2350a(f). This program element funds the implementation of space-related Air Force ICRD&A agreements in (1) Basic Research (2) Applied Research (3) Advanced Technology Development (4) Demonstration and Validation (5) Engineering and Manufacturing Development and (6) RDT&E Management Support.</p> <p>(U) <u>FY 2001 (\$ in Thousands)</u> (U) \$0 No Activity (U) \$0 Total</p> <p>(U) <u>FY 2002 (\$ in Thousands)</u> (U) \$0 No Activity (U) \$0 Total</p>									
Project 5035			Page 1 of 6 Pages				Exhibit R-2 (PE 0603791F)		

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE			
BUDGET ACTIVITY		PE NUMBER AND TITLE		PROJECT	
04 - Demonstration and Validation		0603791F International Space Cooperative R&D		5035	
(U) <u>A. Mission Description Continued</u>					
(U) <u>FY 2003 (\$ in Thousands)</u>					
(U)	\$200	Hyperspectral Data Exploitation Algorithm Development and Assessment (Air Force Research Lab (AFRL)/ Australia) - Planned cooperative project to develop approaches and technologies for improved space-based hyperspectral sensors. In FY03, data collection, data analysis, and algorithm validation will begin.			
(U)	\$300	Impacts of the Space Environment on Communications, Navigation, and Surveillance Systems (AFRL/ The United Kingdom (UK)) - Planned cooperative project to develop space weather specification, forecasting techniques, and data displays to provide reliable, timely warning of ionospheric disturbances that will seriously disrupt the performance of space-based communication, navigation and surveillance systems, as well as ground-based surveillance systems such as those employed for early missile warning and missile defense. In FY03, data collection will begin.			
(U)	\$100	Space Radiation Sensors (AFRL/ UK) - Planned cooperative project to validate the performance of a key Air Force spacecraft instrument for the measurement of space environment radiation hazards. The instrument's capability of issuing real-time space hazard warnings will be tested under a variety of conditions encountered in space aboard a joint US/UK satellite mission. Prior year (FY01, FY02) funding was provided from PE 0603790F, NATO Cooperative R&D. In FY03, the project will complete the development of the final radiation database.			
(U)	\$43	Space Vehicle Orbit Prediction (AFRL/ France) - Planned cooperative project to use data from a French accelerometer experiment currently on orbit to improve the accuracy of upper atmospheric aerodynamic drag models. This will include solving for short term geomagnetic activity variations. In FY03, modeling algorithms to use the new data will be developed.			
(U)	\$643	Total			
(U) <u>B. Budget Activity Justification</u>					
This PE is designated in Budget Activity 4 because most of the ICRD&A projects support specific systems, include all efforts necessary to evaluate integrated technologies in as realistic an operating environment as possible to assess the performance or cost reduction potential of advanced technology, and help expedite technology transition from the laboratory to operational use.					
(U) <u>C. Program Change Summary (\$ in Thousands)</u>					
		<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Total Cost</u>
(U)	Previous President's Budget	0	0	0	
(U)	Appropriated Value				
(U)	Adjustments to Appropriated Value				
	a. Congressional/General Reductions				
Project 5035		Page 2 of 6 Pages		Exhibit R-2 (PE 0603791F)	

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)							DATE February 2002					
BUDGET ACTIVITY				PE NUMBER AND TITLE			PROJECT					
04 - Demonstration and Validation				0603791F International Space Cooperative R&D			5035					
(U) C. Program Change Summary (\$ in Thousands) Continued				<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Total Cost</u>					
b. Small Business Innovative Research												
c. Omnibus or Other Above Threshold Reprogram												
d. Below Threshold Reprogram												
e. Rescissions												
(U) Adjustments to Budget Years Since FY 2002 PBR						643						
(U) Current Budget Submit/FY 2003 PBR						643						
(U) <u>Significant Program Changes:</u>												
(U) D. Other Program Funding Summary (\$ in Thousands)				<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>
				<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E												
(U) Other APPN												
(U) E. Acquisition Strategy				<p>A principal goal of the International Space Cooperative R&D program is to effectively utilize the aggregate resources invested by the US and our allies in space-related R&D. This program element provides the critical funding incentive needed to pursue space-related ICRD&A agreements and helps to (a) leverage USAF and allied resources through cost sharing and economies of scale; (b) exploit the best US and allied technologies for equipping coalition forces; (c) demonstrate areas of commonality or interoperability with our allies; and (d) accelerate the availability of defense technology and systems. Candidate projects are reviewed and approved by the USD(AT&L). An international agreement defining project objectives, responsibilities and costs is required prior to release of funds. To obtain these funds and ensure service commitment, projects are selected from existing or new space-related RDT&E programs funded in the Future Years Defense Plan (FYDP). Project offices must show matching funds and contributions from associated program elements and equitable allied funding. As appropriate, funding responsibility for out-year requirements and follow-on efforts are transferred to the project office and associated program elements. Most contracts are awarded after full and open competition.</p>								
(U) F. Schedule Profile				<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>						

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE February 2002		
BUDGET ACTIVITY					PE NUMBER AND TITLE					PROJECT		
04 - Demonstration and Validation					0603791F International Space Cooperative R&D					5035		
(U) <u>F. Schedule Profile Continued</u>												
		<u>FY 2001</u>				<u>FY 2002</u>				<u>FY 2003</u>		
	1	2	3	4	1	2	3	4	1	2	3	4
(U)	Hyperspectral Data Exploitation Algorithm Development and Assessment											
(U)	- Project Agreement signed											
(U)	- Data collection											
(U)	- Data analysis and algorithm validation											
(U)	- Interim report											
(U)	Impacts of the Space Environment on Comm, Nav, and Surv Sys											
(U)	- Project Agreement signed											
(U)	- Data collection											
(U)	Space Radiation Sensors											
(U)	- Project Agreement signed											
(U)	- Calibration review											
(U)	- Preliminary data base											
(U)	- Verification of calibration											
(U)	- Final data base											
(U)	Space Vehicle Orbit Prediction											
(U)	- Project Agreement signed											
(U)	- Algorithm development											

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2002			
BUDGET ACTIVITY					PE NUMBER AND TITLE			PROJECT		
04 - Demonstration and Validation					0603791F International Space Cooperative R&D			5035		
(U) A. Project Cost Breakdown (\$ in Thousands)										
					<u>FY 2001</u>		<u>FY 2002</u>			<u>FY 2003</u>
(U)	Hyperspectral Data Exploitation Algorithm Development and Assessment				0		0			200
(U)	Impacts of the Space Environment on Communications, Navigation, and Surveillance Systems				0		0			300
(U)	Space Radiation Sensors				0		0			100
(U)	Space Vehicle Orbit Prediction									43
(U)	Total				0		0			643
Complete information regarding the use of International Space Cooperative R&D funds is not available for all proposed agreements, since some are still being negotiated or were recently signed. In addition, information on the use of future funding for agreements is not available in all instances because the funds are used as needed to supplement a project office's related 6.1 through 6.5 RDT&E appropriations.										
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)										
(U) Performing Organizations:										
<u>Contractor or Government</u>	<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Performing Activity</u>	<u>Project Office</u>	<u>Total Prior to FY 2001</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>						
<u>Product Development Organizations</u>										
AFRL Hanscom AFB, MA	TBD	TBD			0	0	0	643	Continuing	TBD
<u>Support and Management Organizations</u>										
TBD	TBD	TBD			0	0	0	0	Continuing	TBD
<u>Test and Evaluation Organizations</u>										
TBD	TBD	TBD			0	0	0	0	Continuing	TBD
(U) Government Furnished Property:										
<u>Item Description</u>	<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Delivery Date</u>		<u>Total Prior to FY 2001</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Vehicle</u>	<u>Date</u>	<u>Date</u>							

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)				DATE					
04 - Demonstration and Validation				February 2002					
BUDGET ACTIVITY				PE NUMBER AND TITLE			PROJECT		
04 - Demonstration and Validation				0603791F International Space Cooperative R&D			5035		
(U) Government Furnished Property Continued:									
	<u>Contract</u>	<u>Award or</u>							
<u>Item</u>	<u>Method/Type</u>	<u>Obligation</u>	<u>Delivery</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Description</u>	<u>or Funding</u>	<u>Date</u>	<u>Date</u>	<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Complete</u>	<u>Program</u>
<u>Product Development Property</u>									
None									
<u>Support and Management Property</u>									
None									
<u>Test and Evaluation Property</u>									
None									
				<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Subtotals</u>				<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Complete</u>	<u>Program</u>
Subtotal Product Development				0	0	0	643	TBD	TBD
Subtotal Support and Management				0	0	0	0	TBD	TBD
Subtotal Test and Evaluation				0	0	0	0	TBD	TBD
Total Project				0	0	0	643	TBD	TBD

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 2002		
BUDGET ACTIVITY 04 - Demonstration and Validation				PE NUMBER AND TITLE 0603800F Joint Strike Fighter				PROJECT 2025		
COST (\$ in Thousands)		FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
2025	Joint Strike Fighter (JSF)	341,167	0	0	0	0	0	0	0	1,907,352
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0
<p>(U) <u>A. Mission Description</u> The Joint Strike Fighter (JSF) Program will develop and field an affordable, highly common family of next generation strike fighter aircraft for the USN, USMC, USAF and allies. The current phase emphasizes facilitating the evolution of fully validated and affordable joint operational requirements, and demonstrating cost leveraging technologies and concepts to lower risk prior to entering Systems Development and Demonstration (SDD) in October 2001. This is a joint program with no executive service. Navy and Air Force each provide approximately equal shares of annual funding for the program. The United Kingdom (UK) is a collaborative partner in this phase of the program and several other countries also participate.</p> <p>PROGRAM FUNDING IN COST TABLE (\$341, 167 thousand in FY 2001) REFLECTS AIR FORCE FUNDING.</p> <p>PROGRAM TOTAL FUNDING BREAKOUT (FY 2001) REFLECTS NAVY, AIR FORCE, AND INTERNATIONAL FUNDING.</p>										
(U) <u>FY 2001 (\$ in Thousands)</u>										
(U)	\$311,113	Completed CDP efforts by Boeing, Lockheed Martin and Pratt & Whitney including ground and flight demonstrations, areas of technology maturation and concept refinement for a tri-service family of aircraft. Requested proposals from contractors for their designs and SDD programs.								
(U)	\$147,000	Completed transition risk reduction activities under bridge contracts with Boeing, Lockheed Martin and Pratt & Whitney, and funded Pratt & Whitney long-lead requirements to protect SDD schedule.								
(U)	\$111,064	Completed the General Electric (GE) JSF Engine Phase IIIa effort and commenced Phase IIIb effort. GE engine development program continues in JSF Program Elements 0604800F and 0604800N.								
(U)	\$57,080	Completed assessments/systems engineering support for the CDP in the areas of airframe, flight systems, manufacturing and producibility, mission systems, propulsion, autonomic logistics, system test, air vehicle analysis and integration, advanced cost estimating, survivability, integrated flight and propulsion control, and carrier suitability. Completed analyses required for Milestone B. Conducted source selection evaluation to support down-select for final design.								
Project 2025			Page 1 of 12 Pages				Exhibit R-2 (PE 0603800F)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 2002																																																							
BUDGET ACTIVITY 04 - Demonstration and Validation	PE NUMBER AND TITLE 0603800F Joint Strike Fighter																																																								
		PROJECT 2025																																																							
<p>(U) <u>A. Mission Description Continued</u></p> <p>(U) <u>FY 2001 (\$ in Thousands) Continued</u></p> <p>(U) \$27,069 Completed modeling and simulation activities to support Milestone B analyses. Completed modeling and simulation support testing, training, and refinement of concept of operations for the weapons system (simulation based acquisition).</p> <p>(U) \$31,505 Completed mission support, including program office functions.</p> <p>(U) \$684,831 Total</p> <p>(U) <u>FY 2002 (\$ in Thousands)</u></p> <p>(U) \$0 Not Applicable</p> <p>(U) \$0 Total</p> <p>(U) <u>FY 2003 (\$ in Thousands)</u></p> <p>(U) \$0 No Activity</p> <p>(U) \$0 Total</p> <p>(U) <u>B. Budget Activity Justification</u></p> <p>This program is funded under Demonstration and Validation (DEM/VAL), because it integrates hardware for test related to specific ship or aircraft applications.</p> <p>(U) <u>C. Program Change Summary (\$ in Thousands)</u></p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;"></th> <th style="text-align: center;"><u>FY 2001</u></th> <th style="text-align: center;"><u>FY 2002</u></th> <th style="text-align: center;"><u>FY 2003</u></th> <th style="text-align: center;"><u>Total Cost</u></th> </tr> </thead> <tbody> <tr> <td>(U) Previous President's Budget</td> <td style="text-align: right;">341,167</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: right;">1,907,352</td> </tr> <tr> <td>(U) Appropriated Value</td> <td style="text-align: right;">341,167</td> <td style="text-align: center;">0</td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Appropriated Value</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> a. Congressional/General Reductions</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> b. Small Business Innovative Research</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> c. Omnibus or Other Above Threshold Reprogram</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> d. Below Threshold Reprogram</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> e. Rescissions</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Budget Years Since FY 2002 PBR</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) Current Budget Submit/FY 2003 PBR</td> <td style="text-align: right;">341,167</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: right;">1,907,352</td> </tr> </tbody> </table>				<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Total Cost</u>	(U) Previous President's Budget	341,167	0	0	1,907,352	(U) Appropriated Value	341,167	0			(U) Adjustments to Appropriated Value					a. Congressional/General Reductions					b. Small Business Innovative Research					c. Omnibus or Other Above Threshold Reprogram					d. Below Threshold Reprogram					e. Rescissions					(U) Adjustments to Budget Years Since FY 2002 PBR					(U) Current Budget Submit/FY 2003 PBR	341,167	0	0	1,907,352
	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Total Cost</u>																																																					
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(U) Current Budget Submit/FY 2003 PBR	341,167	0	0	1,907,352																																																					
Project 2025	Page 2 of 12 Pages	Exhibit R-2 (PE 0603800F)																																																							

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 2002	
BUDGET ACTIVITY 04 - Demonstration and Validation				PE NUMBER AND TITLE 0603800F Joint Strike Fighter				PROJECT 2025	
(U) <u>C. Program Change Summary (\$ in Thousands) Continued</u>									
(U) <u>Significant Program Changes:</u>									
Funding: Not applicable.									
Schedule: Not applicable.									
Technical: Not applicable.									
(U) <u>D. Other Program Funding Summary (\$ in Thousands)</u>									
	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) RDT&E 0603800N	341,164	0	0	0	0	0	0	0	1,950,617
(U) RDT&E 0603800E	0	0	0	0	0	0	0	0	118,006
(U) United Kingdom	800								201,221
(U) Multi-Lateral	1,700								32,100
(U) Canada	0								10,600
(U) Italy	0								10,000
(U) RDT&E 0604800N	0	762,957	1,727,500	1,931,753	2,489,103	1,987,246	1,689,760	Continuing	TBD
(U) RDT&E 0604800F	0	761,893	1,743,668	1,941,951	2,485,774	1,984,386	1,686,592	Continuing	TBD
(U) United Kingdom (SDD)	0	95,000	161,000	200,000	356,000	384,000	355,000	Continuing	TBD
(U) Related Procurement Funding:									
(U) Procurement 0207142F - JSF Squadrons	0	0			74,014	1,042,863	1,815,676	Continuing	TBD
(U) Procurement 0204146N - JSF Squadrons	0	0			50,079	762,878	1,325,330	Continuing	TBD
Note 1: Multi-Lateral countries include Netherlands, Norway and Denmark.									
(U) <u>E. Acquisition Strategy</u>									
Program activities in this phase centered around three distinct objectives that provided a sound foundation for the start of System Development and Demonstration (SDD) in Fall 2001:									
(1) facilitated the Services' development of fully validated, affordable operational requirements;									
(2) lowered risk by investing in and demonstrating key leveraging technologies that lower the cost of development, production and ownership; and									
Project 2025			Page 3 of 12 Pages				Exhibit R-2 (PE 0603800F)		

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE			
BUDGET ACTIVITY		PROJECT			
04 - Demonstration and Validation	0603800F Joint Strike Fighter	February 2002 2025			
<p>(U) <u>E. Acquisition Strategy Continued</u> (3) demonstrated operational concepts.</p> <p>Early warfighter and technologist interaction was an essential aspect of the requirements definition process, and key to achieving JSF affordability goals. To an unprecedented degree, the JSF program used cost-performance trades early, as an integral part of the weapon system development process. The Services defined requirements through an iterative process, balancing weapon system capability against life cycle cost at every stage. Each iteration of the requirements was provided to industry. They evolved their designs and provided cost data back to the warfighters. The warfighters evaluated trades and made decisions for the next iteration. This iterative process produced the iterations of 'Services' Joint Interim Requirements Document in 1995, 1997, 1998 and culminated in the approved Joint Operational Requirements Document (ORD) in FY2000.</p> <p>A sizable technology maturation effort was conducted to reduce risk and life cycle cost (LCC) through technology maturation and demonstration. The primary emphasis was on technologies identified as high payoff contributors to affordability, supportability, survivability and lethality. Numerous demonstrations were accomplished to validate performance and life cycle cost impact to component, subsystem and the total system.</p> <p>In November 1996, contracts were awarded to Boeing and Lockheed Martin for Concept Demonstration Programs. These competing contractors built and are flew concept demonstrator aircraft, conducted concept unique ground demonstrations, and refined their respective weapon system concepts. Specifically, Boeing and Lockheed Martin demonstrated commonality and modularity, Short Take Off/ Vertical Land (STOVL) hover and transition, and low speed handling qualities of their respective weapon system concepts. Pratt and Whitney provided propulsion hardware and engineering support. General Electric continued development of a second, interchangeable , engine for competition in production.</p> <p>Following evaluation of proposals and a favorable Milestone B decision, the JSF Program commenced SDD on 26 October 2001 with SDD contract awards to Lockheed Martin and Pratt & Whitney. The SDD plan reflects a block approach, based on an open system architecture, for accomplishing aircraft and weapons integration. General Electric continues propulsion development efforts.</p> <p>Procurement of the USAF and USMC JSF variants is planned to begin in FY 2006, with advance procurement for Lot 1 in FY 2005. Procurement of the USN JSF variant is planned to begin in FY 2008, with advance procurement for Lot 3 in FY 2007.</p>					
<p>(U) <u>F. Schedule Profile</u></p> <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"><u>FY 2001</u></td> <td style="text-align: center;"><u>FY 2002</u></td> <td style="text-align: center;"><u>FY 2003</u></td> </tr> </table>			<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>
<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>			
Project 2025	Page 4 of 12 Pages	Exhibit R-2 (PE 0603800F)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)							DATE February 2002					
BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT				
04 - Demonstration and Validation				0603800F Joint Strike Fighter				2025				
(U) <u>F. Schedule Profile Continued</u>												
		<u>FY 2001</u>				<u>FY 2002</u>				<u>FY 2003</u>		
	1	2	3	4	1	2	3	4	1	2	3	4
(U) Commenced Concept Development Phase - Dec 94												
(U) Released RFP for Concept Demonstration Efforts - Mar 96												
(U) Designated a joint, DoD, Acquisition Category ID Program - May 96												
(U) Competitively Awarded Concept Demonstration Contracts - Nov 96												
(U) Completed joint Operational Requirements Document (ORD) - Mar 00												
(U) Milestone B and SDD Contract Award - Oct 01												
*												
.												
Project 2025				Page 5 of 12 Pages				Exhibit R-2 (PE 0603800F)				

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2002				
BUDGET ACTIVITY				PE NUMBER AND TITLE			PROJECT				
04 - Demonstration and Validation				0603800F Joint Strike Fighter			2025				
(U) A. Project Cost Breakdown (\$ in Thousands)											
							<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>		
(U) PROJECT COST CATEGORIES:											
(U) WEAPON SYSTEMS CONCEPT DEMONSTRATIONS (including flying demonstrators and supporting propulsion efforts)							311,113	0			
(U) TRANSITION RISK REDUCTION ACTIVITIES							147,000	0			
(U) GE ENGINE PROGRAM							111,064	0			
(U) TECHNOLOGY MATURATION AREAS:											
(U) Airframe							1,465	0			
(U) Flight Systems							2,919	0			
(U) Manufacturing and Producibility							273	0			
(U) Propulsion							3,799	0			
(U) Mission Systems							6,793	0			
(U) Systems Engineering Support							32,445	0			
(U) Autonomic Logistics							8,466	0			
(U) Modeling, Simulation, Analysis, Threat, COPT and Core Support							26,669	0			
(U) Mission Support							8,554	0			
(U) SUPPORT (CS)							24,271	0			
(U) TEST AND EVALUATION: (included above)											
(U) MANAGEMENT: N/A											
(U) Total							684,831	0			
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)											
(U) Performing Organizations:											
<u>Contractor or</u>	<u>Contract</u>										
<u>Government</u>	<u>Method/Type</u>	<u>Award or</u>	<u>Performing</u>	<u>Project</u>							
<u>Performing</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Activity</u>	<u>Office</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>	
<u>Activity</u>	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>	<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Complete</u>	<u>Program</u>	
Project 2025											

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)								DATE February 2002	
BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT	
04 - Demonstration and Validation				0603800F Joint Strike Fighter				2025	
(U) <u>Performing Organizations Continued:</u>									
<u>Product Development Organizations</u>									
Strike Warfare Concept									
Studies:									
Miscellaneous	Various		11,467	11,467	11,467	0	0	0	11,467
Technology Maturation									
Concept Exploration Phase:									
Filed Activities	Various		3,432	3,432	3,432	0	0	0	3,432
Strike Warfare Systems									
Design Development:									
Boeing, Seattle WA	C/CPFF		32,770	32,770	32,770	0	0	0	32,770
McAir, St Louis MO	C/CPFF		23,708	23,708	23,708	0	0	0	23,708
Northrop, Pico Rivera	C/CPFF		21,358	21,358	21,358	0	0	0	21,358
CA									
Lockheed Martin, Fort	C/CPFF		28,311	28,311	28,311	0	0	0	28,311
Worth TX									
Miscellaneous	Various		1,121	1,121	1,121	0	0	0	1,121
Field Activities	Various		8,322	8,322	8,322	0	0	0	8,322
ASTOVL:									
Lockheed Martin	SS/CPFF		16,416	16,416	16,416	0	0	0	16,416
Boeing	SS/CPFF		11,200	11,200	11,200	0	0	0	11,200
Miscellaneous	Various		15,539	15,539	15,539	0	0	0	15,539
Core Team Support									
Field Activities	Various		2,522	2,522	2,522	0	0	0	2,522
Weapon System Concept									
Demonstrations (Note 1):									
Boeing	C/CPFF	Oct	775,598	775,598	718,029	57,569	0	0	775,598
		98/99/00/01							
Lockheed Martin	C/CPFF	Oct	913,854	913,854	783,004	130,850	0	0	913,854

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)								DATE February 2002	
BUDGET ACTIVITY 04 - Demonstration and Validation				PE NUMBER AND TITLE 0603800F Joint Strike Fighter				PROJECT 2025	
(U) <u>Performing Organizations Continued:</u>									
<u>Product Development Organizations</u>									
			98/99/00/01						
Pratt & Whitney,	SS/CPFF	Nov	959,784	959,784	837,090	122,694	0	0	959,784
Hartford CT		98/99/00/01							
Transition Risk Reduction									
Activities:									
Boeing	SS/FFP	Apr 01	35,000	35,000	0	35,000			35,000
Lockheed Martin	SS/FFP	Apr 01	35,000	35,000	0	35,000			35,000
Pratt & Whitney	SS/CPFF	Apr 01	52,675	52,675	0	52,675			52,675
Pratt & Whitney	SS/CPAF	Nov 01	24,325	24,325	0	24,325			24,325
GE Engine Program:									
General Electric,	SS/CPFF		7,000	7,000	7,000	0	0	0	7,000
Cincinnati OH									
General Electric	SS/CPFF	Nov 98/Oct	249,327	249,327	138,263	111,064	0	0	249,327
		99/00/01							
TECHNOLOGY									
MATURATION AREAS:									
AIRFRAME:									
McAir	SS/CPFF		19,240	19,240	19,240	0	0	0	19,240
Miscellaneous	Various	Various	2,158	2,158	2,135	23	0	0	2,158
Field Activities	Various	Nov	8,219	8,219	6,777	1,442	0	0	8,219
		98/99/00/01							
FLIGHT SYSTEMS:									
Lockheed Martin	C/CPFF	Nov 98/99	52,201	52,201	52,201	0	0	0	52,201
McAir	C/CPFF	Nov 98/99	65,944	65,944	65,944	0	0	0	65,944
Miscellaneous	Various	Various	10,319	10,319	10,141	178	0	0	10,319
Field Activities	Various	Nov	23,723	23,723	20,982	2,741	0	0	23,723
		98/99/00/01							

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)								DATE February 2002		
BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT		
04 - Demonstration and Validation				0603800F Joint Strike Fighter				2025		
(U) <u>Performing Organizations Continued:</u>										
<u>Product Development Organizations</u>										
MANUFACTURING										
AND PRODUCIBILITY:										
	Hughes, Los Angeles	C/CPFF		5,065	5,065	5,065	0	0	0	5,065
CA										
	Lockheed Martin	C/CPFF	Nov 98/99	9,600	9,600	9,600	0	0	0	9,600
	General Res. Corp.,	C/CPFF		1,945	1,945	1,945	0	0	0	1,945
	Huntsville AL									
	Scaled Composites	C/CPFF		2,000	2,000	2,000	0	0	0	2,000
	Lockheed Martin	C/CPFF		700	700	700	0	0	0	700
	Miscellaneous	Various	Various	1,619	1,619	1,619	0	0	0	1,619
	Field Activities	Various	Nov	5,421	5,421	5,148	273	0	0	5,421
			98/99/00/01							
PROPULSION:										
	Pratt & Whitney	C/CPFF		5,448	5,448	5,448	0	0	0	5,448
	General Electric	SS/CPFF		5,681	5,681	5,681	0	0	0	5,681
	Pratt & Whitney	SS/CPFF		30,000	30,000	30,000	0	0	0	30,000
	General Electric	SS/CPFF		3,000	3,000	3,000	0	0	0	3,000
	Pratt & Whitney	SS/CPFF	Jan 99	26,777	26,777	26,777	0	0	0	26,777
	Pratt & Whitney	SS/CPFF		3,640	3,640	3,640	0	0	0	3,640
	Pratt & Whitney	SS/TBD	Dec 98	8,200	8,200	8,200	0	0	0	8,200
	NASA Contracts	Various	Jul 99	2,800	2,800	2,800	0	0	0	2,800
	Miscellaneous	Various	Various	14,845	14,845	14,795	50	0	0	14,845
	Field Activities	Various	Nov	51,642	51,642	47,893	3,749	0	0	51,642
			98/99/00/01							
MISSION SYSTEMS:										
	TI, Plano TX	C/CPFF		2,464	2,464	2,464	0	0	0	2,464
	Lockheed	SS/CPFF		6,856	6,856	6,856	0	0	0	6,856

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)								DATE February 2002	
BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT	
04 - Demonstration and Validation				0603800F Joint Strike Fighter				2025	
(U) <u>Performing Organizations Continued:</u>									
<u>Product Development Organizations</u>									
McAir	SS/CPFF		6,524	6,524	6,524	0	0	0	6,524
Raytheon	C/CPFF	Nov 98/99	45,173	45,173	45,173	0	0	0	45,173
Northrop Grumman	C/CPFF	Nov 98/99	41,903	41,903	41,903	0	0	0	41,903
Boeing	C/CPFF		1,575	1,575	1,575	0	0	0	1,575
Lockheed Martin	C/CPFF		1,517	1,517	1,517	0	0	0	1,517
Hughes	C/CPFF		3,681	3,681	3,681	0	0	0	3,681
Classified	Classified	Nov 98	3,000	3,000	3,000	0	0	0	3,000
Miscellaneous	Various	Various	25,077	25,077	24,856	221	0	0	25,077
Field Activities	Various	Nov 98/99/00/01	40,159	40,159	33,587	6,572	0	0	40,159
 SYSTEMS									
ENGINEERING SUPPORT:									
Miscellaneous	Various	Various	30,268	30,268	24,642	5,626	0	0	30,268
Field Activities	Various	Nov 98/99/00/01	141,014	141,014	114,195	26,819	0	0	141,014
 AUTONOMIC LOGISTICS (formerly Prognostics and Health Management / Supportability and Training:									
Pratt & Whitney	C/CPFF		10,100	10,100	10,100	0	0	0	10,100
General Electric	C/CPFF	Jan 99	1,500	1,500	1,500	0	0	0	1,500
Project 3 (Classified)	C/CPFF		8,576	8,576	8,576	0	0	0	8,576
Project 4 (Classified)	C/CPFF		5,549	5,549	5,549	0	0	0	5,549
Miscellaneous	Various	Various	11,155	11,155	9,584	1,571	0	0	11,155
Field Activity	Various	Nov 98/99/00/01	22,572	22,572	15,677	6,895	0	0	22,572
 MODELING,									

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)									DATE February 2002	
BUDGET ACTIVITY					PE NUMBER AND TITLE				PROJECT	
04 - Demonstration and Validation					0603800F Joint Strike Fighter				2025	
(U) <u>Performing Organizations Continued:</u>										
<u>Product Development Organizations</u>										
SIMULATION, ANALYSIS, THREAT, COPT, AND CORE SUPPORT:										
Miscellaneous	Various	Various	59,500	59,500	47,737	11,763	0	0	59,500	
Field Activities	Various	Nov 98/99/00/01	47,780	47,780	32,874	14,906	0	0	47,780	
MISSION SUPPORT:										
Institute for Defense Analysis	Grant		2,500	2,500	2,500	0	0	0	2,500	
Miscellaneous	Various	Various	2,271	2,271	2,271				2,271	
Field Activities	Various	Various	39,152	39,152	30,598	8,554	0	0	39,152	
Note 1:										
- Includes government managed equipment.										
- Boeing, Lockheed Martin and Pratt & Whitney Total Costs and EACs reflect preliminary close-out costs associated with the Concept Demonstration contracts.										
- Lockheed Martin Total Cost and EAC excludes contractor investment.										
- Pratt and Whitney Total Value of Contract reflects award fees totaling \$35.1M for FY1998 and prior and also reflects basic CDP efforts of technology maturation efforts in Propulsion and Prognostics and Health Management.										
- FY 2001 scope and funding for long lead materials included in the P&W Risk Reduction contract was transferred to the P&W SDD contract after SDD award as planned.										
- GE Engine Total Cost includes \$65.6M for Phase IIIb of GE development effort.										
<u>Support and Management Organizations</u>										
ANSER, Arlington VA	SS/CPFF	Jan99/00/01	30,125	30,125	28,981	1,144	0	0	30,125	
ANTEON/SVERDRUP, Arlington VA	C/CPFF	Apr 01				3,668			3,668	
Stanley Assoc. Arlington VA	SS/CPFF	Apr 01				9,434			9,434	
AEGIS	C/CPFF	Apr 01				2,017			2,017	
Project 2025			Page 11 of 12 Pages				Exhibit R-3 (PE 0603800F)			

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2002			
BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT		
04 - Demonstration and Validation				0603800F Joint Strike Fighter				2025		
(U) <u>Performing Organizations Continued:</u>										
Note 1:										
- Includes government managed equipment.										
- Boeing, Lockheed Martin and Pratt & Whitney Total Costs and EACs reflect preliminary close-out costs associated with the Concept Demonstration contracts.										
- Lockheed Martin Total Cost and EAC excludes contractor investment.										
- Pratt and Whitney Total Value of Contract reflects award fees totaling \$35.1M for FY1998 and prior and also reflects basic CDP efforts of technology maturation efforts in Propulsion and Prognostics and Health Management.										
- FY 2001 scope and funding for long lead materials included in the P&W Risk Reduction contract was transferred to the P&W SDD contract after SDD award as planned.										
- GE Engine Total Cost includes \$65.6M for Phase IIIb of GE development effort.										
<u>Support and Management Organizations</u>										
Arlington VA										
Miscellaneous	Various	Various	35,870	35,870	27,862	8,008	0	0	35,870	
<u>Test and Evaluation Organizations</u>										
Included Above										
				<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>	
<u>Subtotals</u>				<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Complete</u>	<u>Program</u>	
Subtotal Product Development				3,488,222	660,560	0	0	0	4,148,782	
Subtotal Support and Management				56,843	24,271	0	0	0	81,114	
Subtotal Test and Evaluation										
Total Project				3,545,065	684,831	0	0	0	4,229,896	

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 2002
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BUDGET ACTIVITY 04 - Demonstration and Validation	PE NUMBER AND TITLE 0603845F ADVANCED WIDEBAND SYSTEM (AWS)	PROJECT 4944
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COST (\$ in Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
4944 ADVANCED WIDEBAND SYSTEM	0	0	4,982	15,130	33,802	260,929	307,515	274,737	977,095
Quantity of RDT&E Articles	0	0	0	0	0	0	0	2	2

(U) **A. Mission Description**
 The Advanced Wideband System (AWS) will provide DoD with high data rate (wideband) MILSATCOM services in accordance with the Joint Requirements Oversight Council (JROC), Joint Space Management Board approved MILSATCOM Architecture in Aug 96, and the MILSATCOM Capstone Requirements Document (CRD) approved by the JROC in Oct 97. Program Decision Memorandum IV (PDM IV) initiates incorporation of interoperable laser communications and is designed to meet the needs of the defense and intelligence communities for wideband tactical, protected tactical, broadcast, and relay communications; plan for first launch is FY 2009.

AWS will provide the follow-on to the Defense Satellite Communications System (DSCS), Global Broadcast Service (GBS) and Wideband Gapfiller System (WGS) communication services starting in FY 2009. It will provide X-band (DSCS-like), broadcast Ka-band (GBS-like), and two-way Ka-band (WGS-like) services. The six satellite constellation will provide worldwide coverage and make maximum use of commercial practices and technologies. Transformational change will incorporate laser communications and accelerate schedule.

(U) **FY 2001 (\$ in Thousands)**
 (U) \$0 No Activity - Program begins in FY03
 (U) \$0 Total

(U) **FY 2002 (\$ in Thousands)**
 (U) \$0 No Activity - Program begins in FY03
 (U) \$0 Total

(U) **FY 2003 (\$ in Thousands)**
 (U) \$4,982 New Start. Analysis of Alternatives.
 (U) \$4,982 Total

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)							DATE February 2002		
BUDGET ACTIVITY 04 - Demonstration and Validation			PE NUMBER AND TITLE 0603845F ADVANCED WIDEBAND SYSTEM (AWS)				PROJECT 4944		
(U) <u>B. Budget Activity Justification</u>									
Funding is in Budget Activity 4, Demonstration and Validation, since it supports the AWS technology demonstration and validation.									
(U) <u>C. Program Change Summary (\$ in Thousands)</u>									
			<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>		<u>Total Cost</u>		
(U)	Previous President's Budget		0	0	0		942,795		
(U)	Appropriated Value								
(U)	Adjustments to Appropriated Value								
	a. Congressional/General Reductions								
	b. Small Business Innovative Research								
	c. Omnibus or Other Above Threshold Reprogram								
	d. Below Threshold Reprogram								
	e. Rescissions								
(U)	Adjustments to Budget Years Since FY 2002 PBR		0	0	4,982				
(U)	Current Budget Submit/FY 2003 PBR		0	0	4,982		977,095		
(U) <u>Significant Program Changes:</u>									
Added funds to FY03 to begin the AWS Analysis of Alternatives.									
Satellites 1 and 2 funded in RDT&E appropriation and satellites 3 - 6 funded in the Missile Procurement appropriation. The system incorporates interoperable laser communications (PE0603436F) and is designed to meet the needs of the defense and intelligence communities for wideband tactical, protected tactical, broadcast, and relay communications.									
(U) <u>D. Other Program Funding Summary (\$ in Thousands)</u>									
		<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Total Cost</u>
		<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	
(U)	AF RDT&E								
(U)	PE 0603854, Project 644870, CCS-C, Line 52	9,547	17,060	18,013	41,208	20,621	14,845		121,294
(U)	New start PE0603436F, Transformation Wideband MILSATCOM			195,000	435,000	436,000	194,000		1,260,000
Project 4944									Exhibit R-2 (PE 0603845F)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)							DATE February 2002			
BUDGET ACTIVITY 04 - Demonstration and Validation				PE NUMBER AND TITLE 0603845F ADVANCED WIDEBAND SYSTEM (AWS)				PROJECT 4944		
(U) D. Other Program Funding Summary (\$ in Thousands)										
	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>	
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>		
(U) Other APPN										
(U) MPAF, PE 0303602, AF AWS						67,670	595,031	1,300,605	1,963,306	
(U) OPAF, PE 0303600, CCS-C			5,597	8,357	2,204				16,158	
(U) E. Acquisition Strategy										
Provide Advanced Wideband capability, making maximum use of commercial technology and practices.										
(U) F. Schedule Profile										
				<u>FY 2001</u>			<u>FY 2002</u>		<u>FY 2003</u>	
				1	2	3	4	1	2	3
(U) Analysis of Alternatives Complete										4
(U) 1st launch in 1QFY09										X
X = Planned Event										
* = Completed Event										

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2002				
BUDGET ACTIVITY 04 - Demonstration and Validation					PE NUMBER AND TITLE 0603845F ADVANCED WIDEBAND SYSTEM (AWS)			PROJECT 4944			
(U) <u>A. Project Cost Breakdown (\$ in Thousands)</u>											
						<u>FY 2001</u>		<u>FY 2002</u>		<u>FY 2003</u>	
(U)	Pre EMD (including Analysis of Alternatives)					0		0		4,982	
(U)	Total					0		0		4,982	
(U) <u>B. Budget Acquisition History and Planning Information (\$ in Thousands)</u>											
(U) <u>Performing Organizations:</u>											
	<u>Contractor or Government Performing Activity</u>	<u>Contract Method/Type or Funding Vehicle</u>	<u>Award or Obligation Date</u>	<u>Performing Activity EAC</u>	<u>Project Office EAC</u>	<u>Total Prior to FY 2001</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Product Development Organizations</u>											
	TBD	TBD	TBD	TBD	TBD	0	0	0		926,216	926,216
<u>Support and Management Organizations</u>											
	TBD	TBD	TBD	TBD	TBD	0	0	0	4,982	45,897	50,879
<u>Test and Evaluation Organizations</u>											
	TBD	TBD	TBD	TBD	TBD	0	0	0			0
(U) <u>Government Furnished Property:</u>											
	<u>Item Description</u>	<u>Contract Method/Type or Funding Vehicle</u>	<u>Award or Obligation Date</u>	<u>Delivery Date</u>		<u>Total Prior to FY 2001</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Product Development Property</u>											
	TBD	TBD	TBD	TBD		0	0	0		0	0
<u>Support and Management Property</u>											
	TBD	TBD	TBD	TBD		0	0	0		0	0
<u>Test and Evaluation Property</u>											
	TBD	TBD	TBD	TBD		0	0	0			0

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE				
04 - Demonstration and Validation		0603845F ADVANCED WIDEBAND SYSTEM (AWS)			4944	
BUDGET ACTIVITY		PE NUMBER AND TITLE			PROJECT	
<u>Subtotals</u>		<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>
		<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Complete</u>
						<u>Total</u>
Subtotal Product Development		0	0	0		926,216
Subtotal Support and Management		0	0	0	4,982	50,879
Subtotal Test and Evaluation		0	0	0		0
Total Project		0	0	0	4,982	977,095

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 2002	
BUDGET ACTIVITY 04 - Demonstration and Validation				PE NUMBER AND TITLE 0603850F Integrated Broadcast Service (DEM/VAL)				PROJECT 4778	
COST (\$ in Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
4778 Integrated Broadcast Service	12,843	17,149	19,870	9,734	9,959	10,112	10,312	Continuing	TBD
Quantity of RDT&E Articles	0	0	1	1	2	0	0	Continuing	TBD
<p>In FY03, Integrated Broadcast Service (IBS) anticipates receiving \$19.2M from the Cost of War Transfer Account. These funds are not included in the FY03 Air Force baseline. Funding will be used for development of a 'smart pull' capability (\$6.6M) and increased/improved dissemination processes (\$12.6).</p> <p>(U) A. Mission Description</p> <p>The Integrated Broadcast Service (IBS) provides warfighters with critical and highly perishable intelligence in a single, correlated picture via a near-real-time, integrated dissemination architecture. IBS consolidates existing intelligence broadcast systems into a common-format and theater-tailored architecture. The IBS design incorporates new functionality in broadcast and information management and a new message format. It fields Information Management Elements (IME) to geographic Commanders-in-Chief (CINC); built to requirements as set forth in the Joint Operational Requirements Document. Functional characteristics include:</p> <ul style="list-style-type: none"> - Accept data from dissimilar, geographically-dispersed, multi-INT sources. - Transmit to end users equipped with Joint Tactical Terminal (JTT) or terminals which incorporate the Common IBS Modules (CIBS-M). - Disseminate intelligence focused on user generated and CINC validated priorities. - Disseminate intelligence over communications paths available to the end user. <p>The IBS Executive Agent and Joint Program Office fully restructured the acquisition strategy; a result of terminating the initial development effort due to a significant schedule slip. Within the restructure process, IBS users clarified and prioritized IBS requirements that drove acquisition changes. The resulting strategy incorporates a Program Definition/Risk Reduction phase, followed by a spiral development Engineering, Manufacturing, Development phase. The Milestone Decision Authority (MDA) approved the new strategy in January 2000. The Program Office awarded three Phase I contracts in June 2000 and a single Phase II contract in May 2001.</p> <p>(U) FY 2001 (\$ in Thousands)</p> <p>(U) \$3,000 Maintain a Program Management Office, including program supervision, finance and acquisition strategy execution</p> <p>(U) \$2,000 Systems Engineering, including maintenance of architectures, System of Systems management through the JBCCB and BOIG, and Risk Reduction Studies using SBA tools.</p> <p>(U) \$4,707 Continue the design and build of Information Management Elements (Phase II)</p>									
Project 4778			Page 1 of 6 Pages				Exhibit R-2 (PE 0603850F)		

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE
BUDGET ACTIVITY		PROJECT
04 - Demonstration and Validation	0603850F Integrated Broadcast Service (DEM/VAL)	February 2002 4778
<p>(U) <u>A. Mission Description Continued</u></p> <p>(U) <u>FY 2001 (\$ in Thousands) Continued</u></p> <p>(U) \$3,136 Common Message Format (CMF) Development.</p> <p>(U) \$12,843 Total</p> <p>(U) <u>FY 2002 (\$ in Thousands)</u></p> <p>(U) \$3,090 Maintain a Program Management Office, including program supervision, finance and acquisition strategy execution</p> <p>(U) \$2,040 Systems Engineering, including maintenance of architectures, System of Systems management through the JBCCB and Risk Reduction Studies using SBA tools.</p> <p>(U) \$9,619 Continue the design and build of Information Management Elements (Phase II)</p> <p>(U) \$2,300 Common Message Format (CMF) Development.</p> <p>(U) \$100 Test & Evaluation</p> <p>(U) \$17,149 Total</p> <p>(U) <u>FY 2003 (\$ in Thousands)</u></p> <p>(U) \$2,883 Maintain a Program Management Office, including program supervision, finance and acquisition strategy execution.</p> <p>(U) \$2,045 Systems Engineering, including maintenance of architectures, System of Systems management through the JBCCB and Risk Reduction Studies using SBA tools.</p> <p>(U) \$14,442 Continue the design and build of Information Management Elements (Phase II)</p> <p>(U) \$500 Test & Evaluation</p> <p>(U) \$19,870 Total</p> <p>(U) <u>B. Budget Activity Justification</u></p> <p>This program is in budget activity 4 because it includes demonstrating and validating the use of technologies to create an operational integrated broadcast service.</p>		
Project 4778	Page 2 of 6 Pages	Exhibit R-2 (PE 0603850F)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)							DATE		
							February 2002		
BUDGET ACTIVITY				PE NUMBER AND TITLE			PROJECT		
04 - Demonstration and Validation				0603850F Integrated Broadcast Service (DEM/VAL)			4778		
(U) C. Program Change Summary (\$ in Thousands)									
		<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Total Cost</u>				
(U)	Previous President's Budget	24,488	20,529	20,135	TBD				
(U)	Appropriated Value	15,788	20,529		TBD				
(U)	Adjustments to Appropriated Value								
	a. Congressional/General Reductions		-3,380						
	b. Small Business Innovative Research								
	c. Omnibus or Other Above Threshold Reprogram	-2,800							
	d. Below Threshold Reprogram								
	e. Rescissions	-145							
(U)	Adjustments to Budget Years Since FY 2002 PBR			-265					
(U)	Current Budget Submit/FY 2003 PBR	12,843	17,149	19,870	TBD				
(U) Significant Program Changes:									
	- USAF added \$47.4M (RDT&E) for FY 1999-2003 for a partial consolidation of IBS legacy systems' funding.								
	- USAF added an additional \$68.1M (RDT&E) in the FY 2000-2005 budget to complete the consolidation of IBS legacy funds under a single PE.								
	- Congress reduced the IBS RDT&E budget by \$8.7M in FY 2001.								
	- Congress reduced the IBS RDT&E budget by \$3.0M in FY 2002								
(U) D. Other Program Funding Summary (\$ in Thousands)									
		<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Total Cost</u>
		<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Cost to Complete</u>
(U)	OPAF/PE0305179F	0	0	2,800	800	1,000	900	1,100	TBD
(U)	O&M/PE0305179F	15,144	32,700	16,800	17,300	17,800	18,100	18,700	TBD
(U) E. Acquisition Strategy									
	IBS used a Program Definition/Risk Reduction (PDRR) phase, followed by a spiral development Engineering, Manufacturing, Development (EMD) phase. Award of the Phase II contract was based on full and open competition. The Phase II effort will use spiral development.								
(U) F. Schedule Profile									
		<u>FY 2001</u>		<u>FY 2002</u>		<u>FY 2003</u>			
Project 4778		Page 3 of 6 Pages			Exhibit R-2 (PE 0603850F)				

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE February 2002				
BUDGET ACTIVITY					PE NUMBER AND TITLE					PROJECT				
04 - Demonstration and Validation					0603850F Integrated Broadcast Service (DEM/VAL)					4778				
(U) <u>F. Schedule Profile Continued</u>														
		<u>FY 2001</u>					<u>FY 2002</u>					<u>FY 2003</u>		
	1	2	3	4	1	2	3	4	1	2	3	4		
(U) Phase I (PD/RR) Completion	*													
(U) Milestone B Approval			*											
(U) Phase II (EMD)														
(U) - EMD Contract Award			*											
(U) - Preliminary Design Review (PDR)				*										
(U) Spiral I PDR					*									
(U) Sprial I Integration Test						X								
(U) Spiral I Capability Demonstration							X							
(U) Common Message Format														
(U) - Message Development Started	*													
(U) - Interim Development Complete							X							
(U) Spiral II PDR							X							
(U) Spiral II Final Design Review									X					
(U) Spiral II Integration Test										X				
(U) Spiral III PDR									X					
(U) Spiral III Final Design Review												X		
* - Denotes completed event														
X - Denotes planned event														

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2002			
BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT		
04 - Demonstration and Validation				0603850F Integrated Broadcast Service (DEM/VAL)				4778		
(U) A. Project Cost Breakdown (\$ in Thousands)										
						<u>FY 2001</u>		<u>FY 2002</u>		<u>FY 2003</u>
(U)	Program Management					3,000		3,090		2,883
(U)	System Engineering					2,000		2,040		2,045
(U)	Information Management Element (Phase I & Phase II)					4,707		9,619		14,442
(U)	Common Message Format Development					3,136		2,300		0
(U)	Test & Evaluation					0		100		500
(U)	Total					12,843		17,149		19,870
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)										
(U) Performing Organizations:										
<u>Contractor or</u>	<u>Contract</u>									
<u>Government</u>	<u>Method/Type</u>	<u>Award or</u>	<u>Performing</u>	<u>Project</u>						
<u>Performing</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Activity</u>	<u>Office</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Activity</u>	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>	<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Complete</u>	<u>Program</u>
<u>Product Development Organizations</u>										
Lockheed Martin (Phase I)	FFP	June 00	2,000	2,000	0	0	0	0	0	0
BTG, Inc. (Phase I)	FFP	June 00	2,000	2,000	0	0	0	0	0	0
TRW, Inc. (Phase I)	FFP	June 00	2,000	2,000	0	0	0	0	0	0
BTG, Inc. (Phase II)	CPAF	May 01	59,323	59,323	0	4,707	9,619	14,442	Continuing	TBD
Raytheon E-Systems-CMF	FFP	Nov 00	4,850	4,850	0	1,850	1,061	0	0	2,911
SAIC/BTG (CMF)	FFP	Con't	TBD	TBD	0	1,286	1,239	0	0	2,525
<u>Support and Management Organizations</u>										
MITRE/ITSP	CPFF	Oct 98	TBD	TBD	0	5,000	5,130	4,928	Continuing	TBD
<u>Test and Evaluation Organizations</u>										
JITC/46th OSS	Project Order	Con't	TBD	TBD	0	0	100	500	Continuing	TBD

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2002			
BUDGET ACTIVITY 04 - Demonstration and Validation				PE NUMBER AND TITLE 0603850F Integrated Broadcast Service (DEM/VAL)				PROJECT 4778		
(U) Government Furnished Property:										
<u>Item</u>	<u>Contract</u>	<u>Method/Type</u>	<u>Award or</u>		<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Description</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Delivery</u>		<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Complete</u>	<u>Program</u>
	<u>Vehicle</u>	<u>Date</u>	<u>Date</u>							
<u>Product Development Property</u>										
TBD					0	0			Continuing	TBD
<u>Support and Management Property</u>										
TBD					0	0			Continuing	TBD
<u>Test and Evaluation Property</u>										
TBD					0	0			Continuing	TBD
					<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Subtotals</u>					<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Complete</u>	<u>Program</u>
Subtotal Product Development					0	7,843	11,919	14,442	TBD	TBD
Subtotal Support and Management					0	5,000	5,130	4,928	TBD	TBD
Subtotal Test and Evaluation					0	0	100	500	TBD	TBD
Total Project					0	12,843	17,149	19,870	TBD	TBD

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 2002	
BUDGET ACTIVITY 04 - Demonstration and Validation				PE NUMBER AND TITLE 0603851F ICBM - DEM/VAL					
COST (\$ in Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	48,216	47,519	63,025	54,198	63,907	471,897	627,339	Continuing	TBD
1020 ICBM Guidance Applications	14,835	18,109	24,924	20,574	24,737	23,378	21,023	Continuing	TBD
1021 ICBM Propulsion Applications	176	1,650	4,345	4,414	4,536	4,587	4,684	Continuing	TBD
1022 ICBM Reentry Vehicle Applications	18,699	21,439	24,901	21,090	24,737	23,546	22,450	Continuing	TBD
1023 Rocket System Launch Program	12,116	3,531	31	32	33	34	35	Continuing	TBD
1024 ICBM Command & Control (C2) Applications	170	436	1,433	443	451	469	477	Continuing	TBD
4209 Long Range Planning (LRP)	2,220	2,354	7,391	7,645	9,413	419,883	578,670	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0

Note 1: In FY 2003, Projects 1020, Guidance Applications; 1021, ICBM Propulsion Applications; and 4209, Long Range Planning, include new start efforts.

Note 2: In FY 2003, ICBM Dem/Val anticipates receiving \$7.5M from the Cost of War Transfer Account. These funds are not included in the FY03 Air Force baseline. Funding will be used to support broader, intensified Solid Rocket Motor planning and design activities leading to a more aggressive full-scale static test fire demonstration of technologies relevant to the strategic environment.

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 2002																																																								
BUDGET ACTIVITY 04 - Demonstration and Validation	PE NUMBER AND TITLE 0603851F ICBM - DEM/VAL																																																									
<p>(U) <u>A. Mission Description</u> This program's efforts identify methods to reduce life cycle costs, improve nuclear safety and surety, support international arms control agreements and disengagement strategies, and ensure continued ICBM viability. Program includes demonstration and validation projects for ICBM guidance options, support for reentry vehicles beyond original design life, assessment of current and future ICBM propulsion systems, and development of enhancements to ensure command and control capabilities.</p> <p>(U) <u>B. Budget Activity Justification</u> This program is in Budget Activity 04 - Demonstration and Validation because the projects are demonstrating the general military utility and/or cost reduction potential of advanced technologies.</p> <p>(U) <u>C. Program Change Summary (\$ in Thousands)</u></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:50%;"></th> <th style="text-align: right;"><u>FY 2001</u></th> <th style="text-align: right;"><u>FY 2002</u></th> <th style="text-align: right;"><u>FY 2003</u></th> <th style="text-align: right;"><u>Total Cost</u></th> </tr> </thead> <tbody> <tr> <td>(U) Previous President's Budget</td> <td style="text-align: right;">50,975</td> <td style="text-align: right;">44,484</td> <td style="text-align: right;">47,952</td> <td style="text-align: right;">TBD</td> </tr> <tr> <td>(U) Appropriated Value</td> <td style="text-align: right;">51,446</td> <td style="text-align: right;">47,984</td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Appropriated Value</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> a. Congressional/General Reductions</td> <td style="text-align: right;">-365</td> <td style="text-align: right;">-465</td> <td></td> <td></td> </tr> <tr> <td> b. Small Business Innovative Research</td> <td style="text-align: right;">-123</td> <td></td> <td></td> <td></td> </tr> <tr> <td> c. Omnibus or Other Above Threshold Reprogram</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> d. Below Threshold Reprogram</td> <td style="text-align: right;">-2,630</td> <td></td> <td></td> <td></td> </tr> <tr> <td> e. Rescissions</td> <td style="text-align: right;">-112</td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Budget Years Since FY 2002 PBR</td> <td></td> <td></td> <td style="text-align: right;">15,073</td> <td></td> </tr> <tr> <td>(U) Current Budget Submit/FY 2003 PBR</td> <td style="text-align: right;">48,216</td> <td style="text-align: right;">47,519</td> <td style="text-align: right;">63,025</td> <td style="text-align: right;">TBD</td> </tr> </tbody> </table> <p>(U) <u>Significant Program Changes:</u> FY01: \$2,630K BTR includes \$1,182 from the ICBM Guidance Applications Project (1020) and \$1,448 from the ICBM Reentry Vehicle Applications Project (1022) for higher Air Force priorities. FY02: Includes a Congressional add of \$3,500K in the Rocket System Launch Project (1023) to support a Northern Edge Exercise activity. FY03: Includes adjustments to ICBM Guidance Applications, ICBM Propulsion Applications, ICBM Reentry Vehicle Applications and Long Range Planning to meet funding goals. See individual project R-2A Exhibits for details.</p>					<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Total Cost</u>	(U) Previous President's Budget	50,975	44,484	47,952	TBD	(U) Appropriated Value	51,446	47,984			(U) Adjustments to Appropriated Value					a. Congressional/General Reductions	-365	-465			b. Small Business Innovative Research	-123				c. Omnibus or Other Above Threshold Reprogram					d. Below Threshold Reprogram	-2,630				e. Rescissions	-112				(U) Adjustments to Budget Years Since FY 2002 PBR			15,073		(U) Current Budget Submit/FY 2003 PBR	48,216	47,519	63,025	TBD
	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Total Cost</u>																																																						
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Page 2 of 28 Pages		Exhibit R-2 (PE 0603851F)																																																								

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	DATE February 2002
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BUDGET ACTIVITY 04 - Demonstration and Validation	PE NUMBER AND TITLE 0603851F ICBM - DEM/VAL	PROJECT 1020
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COST (\$ in Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
1020 ICBM Guidance Applications	14,835	18,109	24,924	20,574	24,737	23,378	21,023	Continuing	TBD

Note: In FY 2003, this project includes new start efforts to assess guidance flight test experiment options.

(U) A. Mission Description

The ICBM Guidance Applications Project is required to meet on-going needs in applied strategic guidance systems and their subcomponents. This project ensures the continued readiness of our strategic deterrent forces in response to the Nuclear Posture Review, recommendations of the USSTRATCOM Strategic Advisory Group, CINCSTRATCOM guidance, and the Defense Science Board Task Force on Nuclear Deterrence. Efforts within this project are focused on current and future requirements, disengagement strategies, reduced life cycle costs, and increased nuclear surety and safety. These activities leverage the efforts of the Science and Technology community. The efforts are coordinated with the Navy guidance applications efforts so as to avoid duplication while realizing maximum return on the invested dollars. The key elements of the Guidance Applications Project are the continued preservation of the minimum critical technical skills and capabilities needed to respond to unexpected problems in the Minuteman guidance system, the assessment and mitigation of any degradation of aging hardware, and the development and analysis of future strategic guidance hardware. These unique guidance efforts will demonstrate utility and cost savings potential.

(U) FY 2001 (\$ in Thousands)

- (U) \$2,337** Completed development and testing of advanced inertial measurement unit (AIMU) concepts.
- (U) \$2,731** Continued follow-on development and demonstration of concepts for future common strategic guidance system technology.
- (U) \$3,090** Continued development of radiation hard application-specific integrated circuits (ASICs) and high throughput microprocessors for strategic applications.
- (U) \$4,858** Continued the design, test, and integration of thrust axis accelerometer.
- (U) \$1,819** Continued design and development of micro-electrical mechanical (MEMs) instruments and electronics for common guidance system.
- (U) \$14,835** Total

(U) FY 2002 (\$ in Thousands)

- (U) \$5,346** Continue development and prototype of concepts for future common strategic guidance system technology.
- (U) \$3,176** Continue development of radiation hard application-specific integrated circuits (ASICs) and high throughput microprocessor.
- (U) \$9,587** Continue development and test of alternate instrument technology (e.g. Accelerometer, Gyro, MEMs).
- (U) \$18,109** Total

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2002				
BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT			
04 - Demonstration and Validation				0603851F ICBM - DEM/VAL				1020			
(U) A. Project Cost Breakdown (\$ in Thousands)											
						<u>FY 2001</u>		<u>FY 2002</u>		<u>FY 2003</u>	
(U)	Advanced IMU Concepts					2,337					
(U)	Common System Concepts					2,731		5,346		7,247	
(U)	Radiation Hardness					3,090		3,176		3,499	
(U)	Alternate instrument technology (e.g. Accelerometer, Gyro, MEMs).					6,677		9,587		8,800	
(U)	Flight Test Options Analysis									5,378	
(U)	Total					14,835		18,109		24,924	
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)											
(U) Performing Organizations:											
	<u>Contractor or Government</u>	<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Performing Activity</u>	<u>Project Office</u>	<u>Total Prior to FY 2001</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Performing Activity</u>	<u>or Funding Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>						
	<u>Product Development Organizations</u>										
	TRW (Prime)	C/CPAF	Dec 97	Continuing	Continuing	20,652	14,775	18,049	24,864	Continuing	TBD
	<u>Support and Management Organizations</u>										
	Other Engineering Support	Various	As Req'd	Continuing	Continuing	3,395	60	60	60	Continuing	TBD
	<u>Test and Evaluation Organizations</u>										
(U) Government Furnished Property:											
	<u>Item Description</u>	<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Delivery Date</u>		<u>Total Prior to FY 2001</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Product Development Property</u>	<u>or Funding Vehicle</u>	<u>Date</u>	<u>Date</u>							
	None										
	<u>Support and Management Property</u>										
	None										
Project 1020				Page 6 of 28 Pages				Exhibit R-3 (PE 0603851F)			

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE				
BUDGET ACTIVITY		PE NUMBER AND TITLE			PROJECT	
04 - Demonstration and Validation		0603851F ICBM - DEM/VAL			February 2002 1020	
(U) <u>Government Furnished Property Continued:</u>						
<u>Test and Evaluation Property</u>						
None						
		<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>
		<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Complete</u>
						<u>Total</u>
	<u>Subtotals</u>					<u>Program</u>
	Subtotal Product Development	20,652	14,775	18,049	24,864	TBD
	Subtotal Support and Management	3,395	60	60	60	TBD
	Subtotal Test and Evaluation					
	Total Project	24,047	14,835	18,109	24,924	TBD

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	DATE February 2002
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BUDGET ACTIVITY 04 - Demonstration and Validation	PE NUMBER AND TITLE 0603851F ICBM - DEM/VAL	PROJECT 1021
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COST (\$ in Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
1021 ICBM Propulsion Applications	176	1,650	4,345	4,414	4,536	4,587	4,684	Continuing	TBD

Note: In FY 2003, this project includes new start efforts to assess ICBM propulsion technology development.

(U) A. Mission Description

(U) The ICBM Propulsion Application Program develops the ICBM strategic propulsion capability through projects exploring improvements and/or alternatives to current ICBM propulsion systems, conducting studies assessing application of new technology to meet future ICBM propulsion system requirements, assessing opportunities for applying common materials and technology between the ICBM and SLBM propulsion systems, and demonstrating application of technology developed by the Science and Technology community to the ICBM strategic systems.

(U) FY 2001 (\$ in Thousands)

- (U) \$176 Continued studies and assessment of technological developments in support of ICBM propulsion systems.
- (U) \$176 Total

(U) FY 2002 (\$ in Thousands)

- (U) \$357 Complete studies and continue assessments of technological developments in support of ICBM propulsion systems.
- (U) \$1,293 Design and evaluate through static-fire test demonstrations of Air Force Research Laboratory (AFRL) technology in support of ICBM propulsion systems.
- (U) \$1,650 Total

(U) FY 2003 (\$ in Thousands)

- (U) \$160 Conduct assessments of technology developments in support of ICBM propulsion systems.
- (U) \$2,665 Design and evaluate solid propulsion technologies for application to ICBM subsystems through analysis and tests leading to static-fire demonstrations.
- (U) \$400 Define ordnance demo requirements and continue subsystem design and material/component testing.
- (U) \$520 Conduct post-boost propulsion design and evaluation of advanced technologies to support ICBM applications.
- (U) \$600 Conduct assessments and demonstration of advanced service life prediction technology in ICBM propulsion subsystems.
- (U) \$4,345 Total

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)							DATE February 2002																																																																																																																																																																																									
BUDGET ACTIVITY 04 - Demonstration and Validation				PE NUMBER AND TITLE 0603851F ICBM - DEM/VAL				PROJECT 1021																																																																																																																																																																																								
<p>(U) <u>B. Project Change Summary</u> FY03: Funding increased to support Nuclear Posture Review (NPR) requirement and ensure viability of solid rocket propulsion technology base.</p> <p>(U) <u>C. Other Program Funding Summary (\$ in Thousands)</u></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:15%;"></th> <th style="width:10%;"><u>FY 2001</u></th> <th style="width:10%;"><u>FY 2002</u></th> <th style="width:10%;"><u>FY 2003</u></th> <th style="width:10%;"><u>FY 2004</u></th> <th style="width:10%;"><u>FY 2005</u></th> <th style="width:10%;"><u>FY 2006</u></th> <th style="width:10%;"><u>FY 2007</u></th> <th style="width:10%;"><u>Cost to</u></th> <th style="width:10%;"><u>Total Cost</u></th> </tr> <tr> <td></td> <td align="center"><u>Actual</u></td> <td align="center"><u>Estimate</u></td> <td align="center"><u>Estimate</u></td> <td align="center"><u>Estimate</u></td> <td align="center"><u>Estimate</u></td> <td align="center"><u>Estimate</u></td> <td align="center"><u>Estimate</u></td> <td align="center"><u>Complete</u></td> <td></td> </tr> </thead> <tbody> <tr> <td>(U) None</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> </tbody> </table> <p>(U) <u>D. Acquisition Strategy</u> Studies, analyses, and motor ground test firings will be accomplished. All efforts will be conducted under the ICBM Prime Integration Contractor unless other strategies are deemed more appropriate.</p> <p>(U) <u>E. Schedule Profile</u></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:45%;"></th> <th colspan="3" style="width:15%;"><u>FY 2001</u></th> <th colspan="3" style="width:15%;"><u>FY 2002</u></th> <th colspan="3" style="width:15%;"><u>FY 2003</u></th> </tr> <tr> <td></td> <td align="center">1</td><td align="center">2</td><td align="center">3</td> <td align="center">4</td><td align="center">1</td><td align="center">2</td><td align="center">3</td> <td align="center">4</td><td align="center">1</td><td align="center">2</td><td align="center">3</td><td align="center">4</td> </tr> </thead> <tbody> <tr> <td>(U) Studies/Assessments of technology developments</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>(U) --Begin/Complete Annual Studies</td> <td></td><td></td><td align="center">*</td><td></td><td align="center">*</td><td></td><td></td><td align="center">*</td><td align="center">X</td><td align="center">X</td><td></td><td align="center">X</td> </tr> <tr> <td>(U) Solid stage demo design and evaluation of solid propulsion technology</td> <td></td><td></td><td></td><td></td><td align="center">*</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>(U) --Periodic Status Report/Reviews</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td align="center">X</td><td></td><td align="center">X</td><td></td><td align="center">X</td> </tr> <tr> <td>(U) Ordnance demo design and evaluation of technologies</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>(U) --Periodic Status Report/Reviews</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td align="center">X</td><td></td><td align="center">X</td> </tr> <tr> <td>(U) Post-boost propulsion design and evaluation of technologies</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>(U) --Periodic Status Report/Reviews</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td align="center">X</td><td></td><td align="center">X</td> </tr> <tr> <td>(U) Studies/assessments of advanced service life prediction technologies</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>(U) --Periodic Status Report/Reviews</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td align="center">X</td><td></td><td align="center">X</td> </tr> </tbody> </table> <p>* - Completed Event X - Planned Event</p>											<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>		<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>		(U) None											<u>FY 2001</u>			<u>FY 2002</u>			<u>FY 2003</u>				1	2	3	4	1	2	3	4	1	2	3	4	(U) Studies/Assessments of technology developments													(U) --Begin/Complete Annual Studies			*		*			*	X	X		X	(U) Solid stage demo design and evaluation of solid propulsion technology					*								(U) --Periodic Status Report/Reviews								X		X		X	(U) Ordnance demo design and evaluation of technologies													(U) --Periodic Status Report/Reviews										X		X	(U) Post-boost propulsion design and evaluation of technologies													(U) --Periodic Status Report/Reviews										X		X	(U) Studies/assessments of advanced service life prediction technologies													(U) --Periodic Status Report/Reviews										X		X
	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>																																																																																																																																																																																							
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Project 1021				Page 9 of 28 Pages				Exhibit R-2A (PE 0603851F)																																																																																																																																																																																								

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2002				
BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT			
04 - Demonstration and Validation				0603851F ICBM - DEM/VAL				1021			
(U) A. Project Cost Breakdown (\$ in Thousands)											
						<u>FY 2001</u>		<u>FY 2002</u>		<u>FY 2003</u>	
(U)	Contract Engineering Support					176		357		0	
(U)	Studies/Assessments of technology developments									160	
(U)	Solid stage demo design and evaluation of solid propulsion technologies							1,293		2,665	
(U)	Ordnance demo design and evaluation of technologies									400	
(U)	Post-boost propulsion design and evaluation of technologies									520	
(U)	Studies/assessments of advanced service life prediction technologies									600	
(U)	Total					176		1,650		4,345	
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)											
(U) Performing Organizations:											
	<u>Contractor or Government</u>	<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Performing Activity</u>	<u>Project Office</u>	<u>Total Prior to FY 2001</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Activity</u>	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>						
	<u>Product Development Organizations</u>										
	TRW (Prime)	C/CPAF	Dec 97	Continuing	Continuing	465	169	1,640	4,245	Continuing	TBD
	AFRL-Edwards	PO	TBD	30	30	30	0	0	0	0	30
	<u>Support and Management Organizations</u>										
	Prog Management	Various	As Req'd	Continuing	Continuing	39	7	10	100	Continuing	TBD
	<u>Test and Evaluation Organizations</u>										
	None										
(U) Government Furnished Property:											
	<u>Item</u>	<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Delivery</u>		<u>Total Prior to FY 2001</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Description</u>	<u>Vehicle</u>	<u>Date</u>	<u>Date</u>							
Project 1021											
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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2002		
BUDGET ACTIVITY				PE NUMBER AND TITLE			PROJECT		
04 - Demonstration and Validation				0603851F ICBM - DEM/VAL			1021		
(U) Government Furnished Property Continued:									
	<u>Contract</u>	<u>Award or</u>							
<u>Item</u>	<u>Method/Type</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Delivery</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>
<u>Description</u>	<u>Vehicle</u>	<u>Date</u>	<u>Date</u>		<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Complete</u>
<u>Product Development Property</u>									
None									
<u>Support and Management Property</u>									
None									
<u>Test and Evaluation Property</u>									
None									
					<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>
<u>Subtotals</u>					<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Complete</u>
Subtotal Product Development					495	169	1,640	4,245	TBD
Subtotal Support and Management					39	7	10	100	TBD
Subtotal Test and Evaluation									
Total Project					534	176	1,650	4,345	TBD

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)								DATE February 2002			
BUDGET ACTIVITY 04 - Demonstration and Validation				PE NUMBER AND TITLE 0603851F ICBM - DEM/VAL				PROJECT 1022			
COST (\$ in Thousands)		FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost	
1022	ICBM Reentry Vehicle Applications	18,699	21,439	24,901	21,090	24,737	23,546	22,450	Continuing	TBD	
<p>(U) <u>A. Mission Description</u> ICBM Reentry Vehicle (RV) Applications efforts support the deployed ICBM force with emphasis on the capability to implement arms control treaties/initiatives which direct the Minuteman force to a single RV configuration. The RV Applications efforts also equip the Minuteman force with the safest and most reliable RVs and explore options to meet future requirements. These efforts support RVs beyond their original design life by addressing problems with operational reentry systems, meeting real on-going needs, and ensuring the availability of long-lead components/materials. This project develops methods to better predict aging phenomena and identify life cycle cost reduction methods. A key element of the RV Applications efforts is the continued preservation of the minimum critical technical skills and capabilities needed to respond to unexpected problems, aging phenomena and future requirements. RV work conducted under this program will leverage the Science & Technology community investments and coordinate with Navy RV applications program to eliminate duplication and realize synergistic cost savings. Program products are tested on a space available basis on Minuteman and Peacekeeper FDE flights.</p> <p>(U) <u>FY 2001 (\$ in Thousands)</u></p> <p>(U) \$5,400 Continued evaluation of RV material subsystems, materials aging, and material replacements by performing ground and flight tests.</p> <p>(U) \$3,276 Continued design, development, and prototype testing of selected fuze assessment/measurement methodologies.</p> <p>(U) \$1,523 Continued identification and ground testing of potential replacement options for critical RV components.</p> <p>(U) \$1,205 Continued evaluation of improved accuracy measurements and methodologies.</p> <p>(U) \$1,853 Evaluated alternate flight test experiment options.</p> <p>(U) \$3,019 Continued evaluation of advanced common RV designs, applications, and technologies.</p> <p>(U) \$2,423 Continued development and assessment of RV Test & Evaluation methodologies and subsystems.</p> <p>(U) \$18,699 Total</p> <p>(U) <u>FY 2002 (\$ in Thousands)</u></p> <p>(U) \$5,249 Continue evaluation of RV material subsystems, materials aging, and material replacements by performing ground and flight tests.</p> <p>(U) \$4,026 Continue design, development, and prototype flight testing of selected fuze assessment/measurement.</p> <p>(U) \$1,594 Continue identification and ground testing of potential replacement options for critical RV components.</p> <p>(U) \$1,056 Continue evaluation of improved accuracy measurements and methodologies.</p>											
Project 1022				Page 12 of 28 Pages				Exhibit R-2A (PE 0603851F)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)		DATE February 2002																																						
BUDGET ACTIVITY 04 - Demonstration and Validation	PE NUMBER AND TITLE 0603851F ICBM - DEM/VAL	PROJECT 1022																																						
<p>(U) <u>A. Mission Description Continued</u></p> <p>(U) <u>FY 2002 (\$ in Thousands) Continued</u></p> <p>(U) \$3,229 Continue evaluation of alternate flight test experiment options.</p> <p>(U) \$3,790 Continue evaluation of advanced common RV designs, applications, and technologies.</p> <p>(U) \$2,495 Continue development and assessment of RV Test & Evaluation methodologies and subsystems.</p> <p>(U) \$21,439 Total</p> <p>(U) <u>FY 2003 (\$ in Thousands)</u></p> <p>(U) \$5,445 Continue evaluation of RV material subsystems, materials aging, and material replacements by performing ground and flight tests.</p> <p>(U) \$2,746 Continue design, development, and prototype flight testing of selected fuze assessment/measurement.</p> <p>(U) \$1,254 Continue identification and ground testing of potential replacement options for critical RV components.</p> <p>(U) \$756 Continue evaluation of improved accuracy measurements and methodologies.</p> <p>(U) \$4,764 Continue evaluation of alternate flight test experiment options.</p> <p>(U) \$5,246 Continue evaluation of advanced common RV designs, applications, and technologies.</p> <p>(U) \$4,690 Continue development and assessment of RV Test & Evaluation methodologies and subsystems.</p> <p>(U) \$24,901 Total</p> <p>(U) <u>B. Project Change Summary</u> FY03: Funding adjusted to meet Scientific Advisory Group (SAG) objectives for sustainment of reentry vehicle technologies.</p> <p>(U) <u>C. Other Program Funding Summary (\$ in Thousands)</u></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 15%;"></th> <th style="width: 10%; text-align: center;"><u>FY 2001</u></th> <th style="width: 10%; text-align: center;"><u>FY 2002</u></th> <th style="width: 10%; text-align: center;"><u>FY 2003</u></th> <th style="width: 10%; text-align: center;"><u>FY 2004</u></th> <th style="width: 10%; text-align: center;"><u>FY 2005</u></th> <th style="width: 10%; text-align: center;"><u>FY 2006</u></th> <th style="width: 10%; text-align: center;"><u>FY 2007</u></th> <th style="width: 10%; text-align: center;"><u>Cost to</u></th> <th style="width: 10%; text-align: center;"><u>Total Cost</u></th> </tr> <tr> <td></td> <td style="text-align: center;"><u>Actual</u></td> <td style="text-align: center;"><u>Estimate</u></td> <td style="text-align: center;"><u>Complete</u></td> <td></td> </tr> </thead> <tbody> <tr> <td>(U) None</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <p>(U) <u>D. Acquisition Strategy</u> Studies, analyses, limited engineering, and pre-prototype hardware development will be accomplished. All efforts will be conducted under the ICBM Prime Integration Contractor unless other strategies are deemed more appropriate.</p> <p>(U) <u>E. Schedule Profile</u></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 40%;"></th> <th style="width: 20%; text-align: center;"><u>FY 2001</u></th> <th style="width: 20%; text-align: center;"><u>FY 2002</u></th> <th style="width: 20%; text-align: center;"><u>FY 2003</u></th> </tr> </thead> <tbody> <tr> <td>Project 1022</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>				<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>		<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>		(U) None											<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	Project 1022			
	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>																															
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>																																
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BUDGET ACTIVITY					PE NUMBER AND TITLE					PROJECT			
04 - Demonstration and Validation					0603851F ICBM - DEM/VAL					1022			
(U) <u>E. Schedule Profile Continued</u>													
		<u>FY 2001</u>				<u>FY 2002</u>				<u>FY 2003</u>			
	1	2	3	4	1	2	3	4	1	2	3	4	
(U)	Materials Replacement & Aging Evaluations												
(U)	--Periodic Status Reports/Reviews												
(U)	Fuze Assessment/Measurement Tool Development												
(U)	--Periodic Status Reports/Reviews												
(U)	Critical Components Evaluations												
(U)	--Periodic Status Reports/Reviews												
(U)	RV Test & Evaluation Methodologies Development												
(U)	--Periodic Status Reports/Reviews												
(U)	Accuracy Assessment Methodologies Development												
(U)	--Periodic Status Reports/Reviews												
(U)	Advanced Common RV Designs, Applications & Technologies Evaluations												
(U)	--Periodic Status Reports/Reviews												
(U)	Alternate Flight Test Options Development												
(U)	--Periodic Status Reports/Reviews												
(U)	Flight Tests												
	* - Completed Event X - Planned Event												

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2002			
BUDGET ACTIVITY					PE NUMBER AND TITLE			PROJECT		
04 - Demonstration and Validation					0603851F ICBM - DEM/VAL			1022		
(U) A. Project Cost Breakdown (\$ in Thousands)										
						<u>FY 2001</u>		<u>FY 2002</u>		<u>FY 2003</u>
(U)	Evaluate Materials Subsystems and Replacements					5,400		5,249		5,445
(U)	Fuze Assessment					3,276		4,026		2,746
(U)	Identify/Ground Test Critical Components					1,523		1,594		1,254
(U)	Accuracy Assessment Measures/Methodologies					1,205		1,056		756
(U)	Flight Test Experiments Options					1,853		3,229		4,764
(U)	Evaluate Advanced Common RV					3,019		3,790		5,246
(U)	Develop & Assess RV T&E Methods					2,423		2,495		4,690
(U)	Total					18,699		21,439		24,901
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)										
(U) Performing Organizations:										
<u>Contractor or Government</u>	<u>Contract Method/Type</u>	<u>Award or Obligation Date</u>	<u>Performing Activity EAC</u>	<u>Project Office EAC</u>	<u>Total Prior to FY 2001</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Product Development Organizations</u>										
TRW (Prime)	C/CPAF	Dec 97	Continuing	Continuing	21,916	17,266	19,929	23,341	Continuing	TBD
<u>Support and Management Organizations</u>										
Other Engineering & Management Support	Various	Ongoing	Continuing	Continuing	1,346	100	60	60	Continuing	TBD
<u>Test and Evaluation Organizations</u>										
Wright Lab	MIPR	Annual	Continuing	Continuing	1,035	555	450	500	Continuing	TBD
AEDC	PO	Annual	Continuing	Continuing	1,202	700	750	750	Continuing	TBD
Vandenberg AFB	PO	As Req'd	Continuing	Continuing	68	78	250	250	Continuing	TBD
Project 1022					Page 15 of 28 Pages			Exhibit R-3 (PE 0603851F)		

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2002		
BUDGET ACTIVITY				PE NUMBER AND TITLE			PROJECT		
04 - Demonstration and Validation				0603851F ICBM - DEM/VAL			1022		
(U) Government Furnished Property:									
	<u>Contract</u>	<u>Award or</u>							
<u>Item</u>	<u>Method/Type</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Delivery</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>
<u>Description</u>	<u>Vehicle</u>	<u>Date</u>	<u>Date</u>		<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Complete</u>
<u>Product Development Property</u>									
None									
<u>Support and Management Property</u>									
None									
<u>Test and Evaluation Property</u>									
None									
					<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>
<u>Subtotals</u>					<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Complete</u>
Subtotal Product Development					21,916	17,266	19,929	23,341	TBD
Subtotal Support and Management					1,346	100	60	60	TBD
Subtotal Test and Evaluation					2,305	1,333	1,450	1,500	TBD
Total Project					25,567	18,699	21,439	24,901	TBD

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)								DATE February 2002																					
BUDGET ACTIVITY 04 - Demonstration and Validation				PE NUMBER AND TITLE 0603851F ICBM - DEM/VAL				PROJECT 1023																					
COST (\$ in Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost																				
1023 Rocket System Launch Program	12,116	3,531	31	32	33	34	35	Continuing	TBD																				
<p>(U) <u>A. Mission Description</u> This task supports studies/analyses on hardware for cost effective use of excess missile assets.</p> <p>(U) <u>FY 2001 (\$ in Thousands)</u> (U) \$34 Continued on-going study/analysis for the adoption of low cost front-end systems for use on deactivated missile assets. (U) \$10,082 Provided target launch vehicle in support of Northern Edge exercise and demonstrated common strategic missile technology. (U) \$2,000 Integrated Global Positioning System (GPS) range safety certification with Northern Edge target launch vehicle. (U) \$12,116 Total</p> <p>(U) <u>FY 2002 (\$ in Thousands)</u> (U) \$31 Continue on-going study/analysis for the adoption of low cost front-end systems for use on deactivated missile assets. (U) \$3,500 Provide operational support of Northern Edge exercise and demonstrate common strategic missile technology. (U) \$3,531 Total</p> <p>(U) <u>FY 2003 (\$ in Thousands)</u> (U) \$31 Continue on-going study/analysis for the adoption of low cost front-end systems for use on deactivated missile assets. (U) \$31 Total</p> <p>(U) <u>B. Project Change Summary</u> FY02: Includes a Congressional add of \$3.5M to support Northern Edge Exercise activity.</p> <p>(U) <u>C. Other Program Funding Summary (\$ in Thousands)</u></p> <table style="width:100%; border-collapse: collapse;"> <tr> <td></td> <td align="center"><u>FY 2001</u></td> <td align="center"><u>FY 2002</u></td> <td align="center"><u>FY 2003</u></td> <td align="center"><u>FY 2004</u></td> <td align="center"><u>FY 2005</u></td> <td align="center"><u>FY 2006</u></td> <td align="center"><u>FY 2007</u></td> <td align="center"><u>Cost to</u></td> <td align="center"><u>Total Cost</u></td> </tr> <tr> <td></td> <td align="center"><u>Actual</u></td> <td align="center"><u>Estimate</u></td> <td align="center"><u>Estimate</u></td> <td align="center"><u>Estimate</u></td> <td align="center"><u>Estimate</u></td> <td align="center"><u>Estimate</u></td> <td align="center"><u>Estimate</u></td> <td align="center"><u>Complete</u></td> <td></td> </tr> </table> <p>(U) Other APPN (U) None</p>											<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>		<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>																				
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>																					
Project 1023			Page 17 of 28 Pages				Exhibit R-2A (PE 0603851F)																						

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BUDGET ACTIVITY 04 - Demonstration and Validation				PE NUMBER AND TITLE 0603851F ICBM - DEM/VAL				PROJECT 1023																																																																												
<p>(U) <u>D. Acquisition Strategy</u> Studies and analyses will be performed primarily in-house augmented with contractor support as required. Special projects that might be funded under this project that require the development and/or evaluation of hardware along with the associated employment concepts will be awarded to qualified industry sources following open competition. Type contract used (e.g., CPIF, FPIF, etc) will be that deemed most advantageous to the government.</p> <p>(U) <u>E. Schedule Profile</u></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:40%;"></th> <th colspan="3" style="text-align: center;"><u>FY 2001</u></th> <th colspan="3" style="text-align: center;"><u>FY 2002</u></th> <th colspan="3" style="text-align: center;"><u>FY 2003</u></th> </tr> <tr> <th></th> <th style="text-align: center;">1</th> <th style="text-align: center;">2</th> <th style="text-align: center;">3</th> <th style="text-align: center;">4</th> <th style="text-align: center;">1</th> <th style="text-align: center;">2</th> <th style="text-align: center;">3</th> <th style="text-align: center;">4</th> <th style="text-align: center;">1</th> <th style="text-align: center;">2</th> <th style="text-align: center;">3</th> <th style="text-align: center;">4</th> </tr> </thead> <tbody> <tr> <td>(U) (U) Start/Complete Annual Studies/Analysis</td> <td style="text-align: center;">*</td> <td></td> <td></td> <td style="text-align: center;">*</td> <td style="text-align: center;">*</td> <td></td> <td></td> <td></td> <td style="text-align: center;">X</td> <td style="text-align: center;">X</td> <td></td> <td style="text-align: center;">X</td> </tr> <tr> <td>(U) (U) Quick Reaction Launch Capability Demo</td> <td></td> </tr> <tr> <td>(U) -- (U) Northern Edge launch</td> <td></td> <td style="text-align: center;">*</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td style="text-align: center;">X</td> <td></td> <td></td> </tr> <tr> <td>(U) -- (U) ASAS launch canceled (See note)</td> <td></td> <td></td> <td></td> <td style="text-align: center;">*</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <p>Note: Due to technical difficulties in preparing for flight test, ASAS launch was cancelled. Previously completed static firing was deemed sufficient to successfully conclude project.</p> <p>* - Completed Event X - Planned Event</p>											<u>FY 2001</u>			<u>FY 2002</u>			<u>FY 2003</u>				1	2	3	4	1	2	3	4	1	2	3	4	(U) (U) Start/Complete Annual Studies/Analysis	*			*	*				X	X		X	(U) (U) Quick Reaction Launch Capability Demo													(U) -- (U) Northern Edge launch		*								X			(U) -- (U) ASAS launch canceled (See note)				*								
	<u>FY 2001</u>			<u>FY 2002</u>			<u>FY 2003</u>																																																																													
	1	2	3	4	1	2	3	4	1	2	3	4																																																																								
(U) (U) Start/Complete Annual Studies/Analysis	*			*	*				X	X		X																																																																								
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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2002			
BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT		
04 - Demonstration and Validation				0603851F ICBM - DEM/VAL				1023		
(U) A. Project Cost Breakdown (\$ in Thousands)										
						<u>FY 2001</u>		<u>FY 2002</u>		<u>FY 2003</u>
(U)	Studies/Analyses					34		31		31
(U)	Quick Reaction Launch Capability Demonstrations									
(U)	-- Northern Edge Exercise Quick Reaction Launch					12,082		3,500		0
(U)	Total					12,116		3,531		31
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)										
(U) Performing Organizations:										
<u>Contractor or</u>	<u>Contract</u>									
<u>Government</u>	<u>Method/Type</u>	<u>Award or</u>	<u>Performing</u>	<u>Project</u>						
<u>Performing</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Activity</u>	<u>Office</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Activity</u>	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>	<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Complete</u>	<u>Program</u>
<u>Product Development Organizations</u>										
AF Research Lab	MIPR	Mar 97/Jun 01	2,742	2,742	1,894	848	0	0	0	2,742
Florida National Guard	MIPR	Jul 97/Jan 00	5,600	5,600	5,600	0	0	0	0	5,600
Various	Various	As Req'd	N/A	7,338	3,104	2,259	1,975	0	0	7,338
Space Vector	FFP	Jun 00	883	883	883	0	0	0	0	883
Draper Labs	CPFF	Apr 00	700	700	700	0	0	0	0	700
DTIC	MIPR	Mar 01	2,125	2,125	1,875	250	0	0	0	2,125
Orbital Sciences Corp	FFP	Feb 00/Jan 01	10,050	10,050	4,750	5,300	0	0	0	10,050
Kodiak Launch Complex	SS/FFP	Aug 00	1,405	1,405	505	900	0	0	0	1,405
OO-ALC/LM (ICBM SPO)	MIPR	Mar 01	752	752	641	111	0	0	0	752
Thiokol	FFP	Apr 02	600	600	0	0	600			600

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE
BUDGET ACTIVITY										PROJECT
04 - Demonstration and Validation										1023
PE NUMBER AND TITLE										
0603851F ICBM - DEM/VAL										
<p>(U) Performing Organizations Continued:</p> <p><u>Support and Management Organizations</u></p>										
TRW	SS/T&M	As Req'd	N/A	N/A	6,989	1,114	300	0	Continuing	TBD
Various	Various	As Req'd	Continuing	Continuing	808	34	656	31	Continuing	TBD
<u>Test and Evaluation Organizations</u>										
Pt Magu Missile Range	MIPR	Feb 01	2,600	2,600	1,300	1,300	0	0	0	2,600
<p>(U) Government Furnished Property:</p> <p><u>Contract</u></p>										
<u>Item</u>	<u>Method/Type</u>	<u>Award or</u>	<u>Delivery</u>		<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Description</u>	<u>Vehicle</u>	<u>Obligation</u>	<u>Date</u>		<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Complete</u>	<u>Program</u>
<u>Product Development Property</u>										
None										
<u>Support and Management Property</u>										
None										
<u>Test and Evaluation Property</u>										
None										
					<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Subtotals</u>					<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Complete</u>	<u>Program</u>
Subtotal Product Development					19,952	9,668	2,575	0	0	32,195
Subtotal Support and Management					7,797	1,148	956	31	TBD	TBD
Subtotal Test and Evaluation					1,300	1,300	0	0	0	2,600
Total Project					29,049	12,116	3,531	31	TBD	TBD

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BUDGET ACTIVITY 04 - Demonstration and Validation				PE NUMBER AND TITLE 0603851F ICBM - DEM/VAL				PROJECT 1024		
COST (\$ in Thousands)		FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
1024	ICBM Command & Control (C2) Applications	170	436	1,433	443	451	469	477	Continuing	TBD
<p>(U) <u>A. Mission Description</u> To maintain the ICBM weapon systems as a credible deterrent to a hostile attack requires an extremely high confidence in the Command and Control (C2) systems providing connectivity to the National Command Authority (NCA). To ensure the ICBMs can be tasked in all manners of hostile environments requires assured, survivable, and secure channels of communication to the missile Launch Control Centers (LCCs). While assured connectivity is mandated for ICBMs, ways must be found to make the C2 systems cost effective. Continuing studies are needed to identify existing and future technologies as well as concepts that exploit state-of-the-art communications and information transfer techniques that will guarantee the required C2 support to both the current ICBM mission and those ICBM systems and missions that will evolve in the 21st century. This program accomplishes studies, demonstrations, and tests to ensure future ICBM C2 architectures, networks, and systems evolve in a planned, orderly, and cost effective manner while meeting the stringent requirements of nuclear command and control.</p> <p>(U) <u>FY 2001 (\$ in Thousands)</u> (U) \$170 Continued to develop and refine alternatives and concepts for a Command and Control (C2) system architecture supporting strategic missile applications. (U) \$170 Total</p> <p>(U) <u>FY 2002 (\$ in Thousands)</u> (U) \$193 Continue to develop and refine alternatives and concepts for a C2 system architecture supporting strategic missile applications. (U) \$243 Demonstrate, test and evaluate alternative network architectures, applications, and technologies. (U) \$436 Total</p> <p>(U) <u>FY 2003 (\$ in Thousands)</u> (U) \$838 Continue to develop and refine alternatives and concepts that incorporate information assurance, joint interoperability, and other applicable DOD initiatives. Include options identification and analyses for an improved, survivable C2 system. (U) \$595 Continue demonstrations, testing and evaluation of alternative network architectures, applications, and technologies. (U) \$1,433 Total</p> <p>(U) <u>B. Project Change Summary</u> FY03: Funding increased to ensure viability of strategic C2 industrial base.</p>										

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BUDGET ACTIVITY 04 - Demonstration and Validation				PE NUMBER AND TITLE 0603851F ICBM - DEM/VAL				PROJECT 1024				
(U) C. Other Program Funding Summary (\$ in Thousands)												
	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>			
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>				
(U) None												
(U) D. Acquisition Strategy												
Studies and analyses, and limited engineering and pre-prototype hardware development will be accomplished. All efforts will be conducted under the ICBM Prime Integration Contract unless other strategies are deemed more appropriate.												
(U) E. Schedule Profile												
		<u>FY 2001</u>				<u>FY 2002</u>				<u>FY 2003</u>		
	1	2	3	4	1	2	3	4	1	2	3	4
(U)	Future Concepts Study for Command & Control (Ongoing)											
(U)	--Periodic Progress Reports/Reviews											
(U)	Begin demonstrations, test, and evaluations of alternate networks											
(U)	--Periodic Progress Reports/Reviews											
	* - Completed Event X - Planned Event											

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2002				
BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT			
04 - Demonstration and Validation				0603851F ICBM - DEM/VAL				1024			
(U) A. Project Cost Breakdown (\$ in Thousands)											
						<u>FY 2001</u>		<u>FY 2002</u>		<u>FY 2003</u>	
(U)	System Architecture Study					170		193		838	
(U)	Demonstration of Alternate Network					0		243		595	
(U)	Total					170		436		1,433	
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)											
(U) Performing Organizations:											
	<u>Contractor or Government Performing Activity</u>	<u>Contract Method/Type or Funding Vehicle</u>	<u>Award or Obligation Date</u>	<u>Performing Activity EAC</u>	<u>Project Office EAC</u>	<u>Total Prior to FY 2001</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Product Development Organizations</u>										
	TRW (Prime)	C/CPAF	Dec 97	Continuing	Continuing	1,792	166	431	1,428	Continuing	TBD
	<u>Support and Management Organizations</u>										
	Various	Various	As Req'd	N/A	N/A	18	4	5	5	Continuing	TBD
	<u>Test and Evaluation Organizations</u>										
	None										
(U) Government Furnished Property:											
	<u>Item Description</u>	<u>Contract Method/Type or Funding Vehicle</u>	<u>Award or Obligation Date</u>	<u>Delivery Date</u>		<u>Total Prior to FY 2001</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Product Development Property</u>										
	None										
	<u>Support and Management Property</u>										
	None										
	<u>Test and Evaluation Property</u>										
	None										
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04 - Demonstration and Validation		February 2002					
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT					
	0603851F ICBM - DEM/VAL	1024					
		<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Subtotals</u>		<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Complete</u>	<u>Program</u>
Subtotal Product Development		1,792	166	431	1,428	TBD	TBD
Subtotal Support and Management		18	4	5	5	TBD	TBD
Subtotal Test and Evaluation							
Total Project		1,810	170	436	1,433	TBD	TBD

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BUDGET ACTIVITY 04 - Demonstration and Validation	PE NUMBER AND TITLE 0603851F ICBM - DEM/VAL	PROJECT 4209
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COST (\$ in Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
4209 Long Range Planning (LRP)	2,220	2,354	7,391	7,645	9,413	419,883	578,670	Continuing	TBD

Note: In FY 2003, this project includes new start efforts to establish Threats and Scenarios Database with Modeling and Simulation capability.

(U) A. Mission Description

The Long Range Planning (LRP) task analyzes ICBM systems to identify potential modifications required to meet user objectives relative to long term sustainment, technology insertion, employment, and force structure. The studies focus on system supportability, operability, reliability, and maintainability. Options/concepts generated by these studies are evaluated for feasibility, system impacts, and cost. The LRP also lays the groundwork for analysis supporting future ICBM weapon systems development and deployment.

(U) FY 2001 (\$ in Thousands)

- (U) \$492 Continued support of Long Range Planning tasks, development of the Systems Options Report, and update of the Logistics Program Management Plan and the ICBM Master Plan.
- (U) \$945 Continued to perform feasibility and life extension studies.
- (U) \$783 Continued to perform technology insertion studies in support of changing ICBM environments.
- (U) \$2,220 Total

(U) FY 2002 (\$ in Thousands)

- (U) \$468 Continue support of Long Range Planning tasks, development of the Systems Options Report, and update of the Logistics Program Management Plan and the ICBM Master Plan.
- (U) \$1,069 Continue to perform feasibility and life extension studies.
- (U) \$817 Continue to perform technology insertion studies in support of changing ICBM environments.
- (U) \$2,354 Total

(U) FY 2003 (\$ in Thousands)

- (U) \$476 Continue support of Long Range Planning tasks, development of the Systems Options Report, and update of the Logistics Program Management Plan and the ICBM Master Plan.
- (U) \$3,059 Continue to perform feasibility and life extension studies.
- (U) \$800 Continue to perform technology insertion studies in support of changing ICBM environments.

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<p>(U) <u>A. Mission Description Continued</u></p> <p>(U) <u>FY 2003 (\$ in Thousands) Continued</u></p> <p>(U) \$3,056 Begin development of Threats and Scenarios database with Modeling and Simulation (M&S) capability.</p> <p>(U) \$7,391 Total</p> <p>(U) <u>B. Project Change Summary</u></p> <p>(U) <u>C. Other Program Funding Summary (\$ in Thousands)</u></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:15%;"></th> <th style="width:10%;"><u>FY 2001</u></th> <th style="width:10%;"><u>FY 2002</u></th> <th style="width:10%;"><u>FY 2003</u></th> <th style="width:10%;"><u>FY 2004</u></th> <th style="width:10%;"><u>FY 2005</u></th> <th style="width:10%;"><u>FY 2006</u></th> <th style="width:10%;"><u>FY 2007</u></th> <th style="width:10%;"><u>Cost to</u></th> <th style="width:10%;"><u>Total Cost</u></th> </tr> <tr> <td></td> <td style="text-align: center;"><u>Actual</u></td> <td style="text-align: center;"><u>Estimate</u></td> <td style="text-align: center;"><u>Complete</u></td> <td></td> </tr> </thead> <tbody> <tr> <td>(U) None</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> </tbody> </table> <p>(U) <u>D. Acquisition Strategy</u> Studies and analyses will be accomplished. Efforts will be conducted using contracting strategies deemed most appropriate.</p> <p>(U) <u>E. Schedule Profile</u></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:40%;"></th> <th colspan="4" style="text-align: center;"><u>FY 2001</u></th> <th colspan="4" style="text-align: center;"><u>FY 2002</u></th> <th colspan="4" style="text-align: center;"><u>FY 2003</u></th> </tr> <tr> <td></td> <td style="text-align: center;">1</td><td style="text-align: center;">2</td><td style="text-align: center;">3</td><td style="text-align: center;">4</td> <td style="text-align: center;">1</td><td style="text-align: center;">2</td><td style="text-align: center;">3</td><td style="text-align: center;">4</td> <td style="text-align: center;">1</td><td style="text-align: center;">2</td><td style="text-align: center;">3</td><td style="text-align: center;">4</td> </tr> </thead> <tbody> <tr> <td>(U) Contract Award for Annual Studies/Analyses</td> <td style="text-align: center;">*</td><td></td><td></td><td></td> <td></td><td style="text-align: center;">X</td><td></td><td></td> <td></td><td style="text-align: center;">X</td><td></td><td></td> </tr> <tr> <td>(U) --Program Reviews</td> <td></td><td style="text-align: center;">*</td><td style="text-align: center;">*</td><td></td> <td></td><td style="text-align: center;">X</td><td style="text-align: center;">X</td><td></td> <td></td><td style="text-align: center;">X</td><td style="text-align: center;">X</td><td></td> </tr> <tr> <td>(U) --Reports Received</td> <td></td><td></td><td></td><td style="text-align: center;">*</td> <td></td><td></td><td></td><td style="text-align: center;">X</td> <td></td><td></td><td></td><td style="text-align: center;">X</td> </tr> <tr> <td>(U) Threats & Scenarios DB with Modeling & Simulation capability develop</td> <td></td><td></td><td></td><td></td> <td></td><td></td><td></td><td></td> <td></td><td style="text-align: center;">X</td><td></td><td></td> </tr> </tbody> </table> <p>* - Completed Event X - Planned Event</p>										<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>		<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>		(U) None											<u>FY 2001</u>				<u>FY 2002</u>				<u>FY 2003</u>					1	2	3	4	1	2	3	4	1	2	3	4	(U) Contract Award for Annual Studies/Analyses	*					X				X			(U) --Program Reviews		*	*			X	X			X	X		(U) --Reports Received				*				X				X	(U) Threats & Scenarios DB with Modeling & Simulation capability develop										X		
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Project 4209			Page 26 of 28 Pages			Exhibit R-2A (PE 0603851F)																																																																																																														

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2002			
BUDGET ACTIVITY				PE NUMBER AND TITLE			PROJECT			
04 - Demonstration and Validation				0603851F ICBM - DEM/VAL			4209			
(U) A. Project Cost Breakdown (\$ in Thousands)										
						<u>FY 2001</u>		<u>FY 2002</u>		<u>FY 2003</u>
(U)	Long Range Planning Tasks					492		468		476
(U)	Feasibility Studies					945		1,069		3,059
(U)	Technology Insertion Studies					783		817		800
(U)	Threats & Scenarios database with Modeling & Simulation capability development					0		0		3,056
(U)	Total					2,220		2,354		7,391
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)										
(U) Performing Organizations:										
<u>Contractor or Government Performing Activity</u>	<u>Contract Method/Type or Funding Vehicle</u>	<u>Award or Obligation Date</u>	<u>Performing Activity EAC</u>	<u>Project Office EAC</u>	<u>Total Prior to FY 2001</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Product Development Organizations</u>										
TRW (Prime)	C/CPAF	Dec 97	N/A	N/A	2,427	1,982	441	476	Continuing	TBD
Alliant	SS/CPAF	Dec 99	40	40	40	0	0	0	0	40
McCallie	SS/C/FFP	Nov 99	227	227	128	99	0	0	0	227
TBD - Annual Studies/Analysis	TBD	Annually	N/A	N/A	0	0	1,759	3,718	Continuing	TBD
TBD - Threat & Scenario	TBD	Jan 03	N/A	3,056	0	0	0	3,056	Continuing	TBD
<u>Support and Management Organizations</u>										
Various	Various	Ongoing	N/A	N/A	2,208	139	154	141	Continuing	TBD
<u>Test and Evaluation Organizations</u>										
(U) Government Furnished Property:										
<u>Item Description</u>	<u>Contract Method/Type or Funding Vehicle</u>	<u>Award or Obligation Date</u>	<u>Delivery Date</u>		<u>Total Prior to FY 2001</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget to Complete</u>	<u>Total Program</u>
Project 4209										

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2002		
BUDGET ACTIVITY 04 - Demonstration and Validation				PE NUMBER AND TITLE 0603851F ICBM - DEM/VAL			PROJECT 4209		
(U) Government Furnished Property Continued:									
	<u>Contract</u>								
	<u>Method/Type</u>	<u>Award or</u>							
<u>Item</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Delivery</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Description</u>	<u>Vehicle</u>	<u>Date</u>	<u>Date</u>	<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Complete</u>	<u>Program</u>
<u>Product Development Property</u>									
None									
<u>Support and Management Property</u>									
None									
<u>Test and Evaluation Property</u>									
None									
				<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Subtotals</u>				<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Complete</u>	<u>Program</u>
Subtotal Product Development				2,595	2,081	2,200	7,250	TBD	TBD
Subtotal Support and Management				2,208	139	154	141	TBD	TBD
Subtotal Test and Evaluation									
Total Project				4,803	2,220	2,354	7,391	TBD	TBD

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 2002	
BUDGET ACTIVITY 04 - Demonstration and Validation				PE NUMBER AND TITLE 0603854F Wideband MILSATCOM (Space)					
COST (\$ in Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	119,122	99,033	20,009	43,017	22,556	14,845	0	0	551,222
2679 Global Broadcast Service (GBS) Phases 1 and 2	31,564	0	0	0	0	0	0	0	258,625
4811 Wideband Gapfiller	78,011	81,973	1,996	1,809	1,935	0	0	0	171,303
4870 Command & Control System Consolidated (CCSC)	9,547	17,060	18,013	41,208	20,621	14,845	0	0	121,294
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0

NOTE: In FY 2001, project 642679, GBS efforts were transferred to PE 0603840F in order to fund GBS as it's own PE in FY 2002-2007.

(U) **A. Mission Description**
 Provide the DoD with high data rate (Wideband) MILSATCOM services in accordance with the Joint Requirements Oversight Council (JROC), Joint Space Management Board approved MILSATCOM Architecture (Aug 96), and the MILSATCOM Capstone Requirements Document (CRD) approved by the JROC in Oct 97.

Global Broadcast Service (GBS) will provide efficient, high data rate broadcast capability between many distributed information sources and warfighters who receive the broadcast directly on small, inexpensive user terminals. GBS Phase 1 was started in 1996 as a Continental United States (CONUS)-based testbed for requirements definition and operational concept refinement using a leased commercial space segment (satellite). Phase 2 provides near worldwide, limited capability at military frequencies hosted on three Navy Ultra High Frequency Follow-On (UFO) satellites augmented with leased service over CONUS and Europe/SWA.

The Wideband Gapfiller System (WGS) satellites will augment the DoD's Defense Satellite Cmmunications System (DSCS) X-band and Global Broadcast Service (GBS) Ka-band capabilities. In addition, WGS will provide a new two-way Ka-band service. The first WGS launch is scheduled for FY04, and the remaining two are scheduled for FY05.

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<p>(U) <u>A. Mission Description Continued</u> The Command and Control System-Consolidated (CCS-C) provides an integrated commercial-based command and control system for all the MILSATCOM satellite constellations.</p> <p>(U) <u>B. Budget Activity Justification</u> (U) Funding is in Budget Activity 4, Demonstration and Validation to support: WGS: making maximum use of commercial technology and practices by modifying commercial satellites to support unique military requirements, and CCS-C: competitive demonstration phase</p> <p>(U) <u>C. Program Change Summary (\$ in Thousands)</u></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:50%;"></th> <th style="text-align: right;"><u>FY 2001</u></th> <th style="text-align: right;"><u>FY 2002</u></th> <th style="text-align: right;"><u>FY 2003</u></th> <th style="text-align: right;"><u>Total Cost</u></th> </tr> </thead> <tbody> <tr> <td>(U) Previous President's Budget</td> <td style="text-align: right;">134,029</td> <td style="text-align: right;">96,670</td> <td style="text-align: right;">26,670</td> <td style="text-align: right;">561,206</td> </tr> <tr> <td>(U) Appropriated Value</td> <td style="text-align: right;">121,029</td> <td style="text-align: right;">100,670</td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Appropriated Value</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> a. Congressional/General Reductions</td> <td style="text-align: right;">-1,110</td> <td style="text-align: right;">-1,637</td> <td></td> <td></td> </tr> <tr> <td> b. Small Business Innovative Research</td> <td style="text-align: right;">-295</td> <td></td> <td></td> <td></td> </tr> <tr> <td> c. Omnibus or Other Above Threshold Reprogram</td> <td style="text-align: right;">-2,196</td> <td></td> <td></td> <td></td> </tr> <tr> <td> d. Below Threshold Reprogram</td> <td style="text-align: right;">1,694</td> <td></td> <td></td> <td></td> </tr> <tr> <td> e. Rescissions</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Budget Years Since FY 2002 PBR</td> <td></td> <td></td> <td style="text-align: right;">-6,661</td> <td></td> </tr> <tr> <td>(U) Current Budget Submit/FY 2003 PBR</td> <td style="text-align: right;">119,122</td> <td style="text-align: right;">99,033</td> <td style="text-align: right;">20,009</td> <td style="text-align: right;">551,222</td> </tr> </tbody> </table> <p>(U) <u>Significant Program Changes:</u> (U) In FY 2001, project 642679, GBS efforts were transferred to PE 0603840F in order to fund GBS as it's own stand alone PE in FY 2002-2007.</p>					<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Total Cost</u>	(U) Previous President's Budget	134,029	96,670	26,670	561,206	(U) Appropriated Value	121,029	100,670			(U) Adjustments to Appropriated Value					a. Congressional/General Reductions	-1,110	-1,637			b. Small Business Innovative Research	-295				c. Omnibus or Other Above Threshold Reprogram	-2,196				d. Below Threshold Reprogram	1,694				e. Rescissions					(U) Adjustments to Budget Years Since FY 2002 PBR			-6,661		(U) Current Budget Submit/FY 2003 PBR	119,122	99,033	20,009	551,222
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Page 2 of 13 Pages		Exhibit R-2 (PE 0603854F)																																																								

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	DATE February 2002
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BUDGET ACTIVITY 04 - Demonstration and Validation	PE NUMBER AND TITLE 0603854F Wideband MILSATCOM (Space)	PROJECT 2679
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COST (\$ in Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
2679 Global Broadcast Service (GBS) Phases 1 and 2	31,564	0	0	0	0	0	0	0	258,625

NOTE: In FY 2001, project 642679, GBS efforts were transferred to PE 0603840F in order to fund GBS as it's own PE in FY 2002-2007.

(U) A. Mission Description

GBS will provide DoD with efficient, high data rate connectivity to many distributed information sources and warfighters who will receive the broadcast directly on small, inexpensive user terminals in accordance with the GBS Operational Requirements Document (ORD) validated by the Joint Requirements Oversight Council in Apr 1995. Broadcast data includes digitized imagery, logistics and weather data, maps, operational orders, and video. GBS Phase 1 was a single channel leased through FY98 for initial testing and concept exploration. Phase 1 capability was extended under Phase 2 due to delay in deploying capability. GBS Phase 2 includes the ground infrastructure for broadcast management and uplink and receive equipment which work with: (1) space packages on Navy operational satellites UFO 8, 9, and 10 providing near-worldwide service, and (2) leased commercial Ku-band packages for CONUS coverage. GBS Phase 2 schedule was re-baselined by OIPT in Jul 00 (awaiting ADM).

(U) FY 2001 (\$ in Thousands)

- (U) \$20,872 Continued System Development and Test
- (U) \$2,995 Continued Phase 2 Government System Integration
- (U) \$2,888 Continued Program Support
- (U) \$1,210 Continued Field Survey and Integration
- (U) \$2,300 Continued Navy Terminal Support
- (U) \$1,299 Provided System Test and Evaluation Support
- (U) \$31,564 Total

(U) FY 2002 (\$ in Thousands)

- (U) \$0 No activity; project funded in PE 0603840F, Global Broadcast Service, effective FY02.
- (U) \$0 Total

(U) FY 2003 (\$ in Thousands)

- (U) \$0 No activity; project funded in PE 0603840F, Global Broadcast Service, effective FY02.
- (U) \$0 Total

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<p>(U) <u>B. Project Change Summary</u> (U) In FY 2001, project 642679, GBS efforts were transferred to PE 0603840F in order to fund GBS as it's own PE in FY 2002-2007. (U) FY01 System Development and Test includes OSD Direction to support the transition from Joint Broadcast Service to the GBS Phase 2 capability.</p> <p>(U) <u>C. Other Program Funding Summary (\$ in Thousands)</u></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:10%;"></th> <th style="width:10%;"><u>FY 2001</u></th> <th style="width:10%;"><u>FY 2002</u></th> <th style="width:10%;"><u>FY 2003</u></th> <th style="width:10%;"><u>FY 2004</u></th> <th style="width:10%;"><u>FY 2005</u></th> <th style="width:10%;"><u>FY 2006</u></th> <th style="width:10%;"><u>FY 2007</u></th> <th style="width:10%;"><u>Cost to</u></th> <th style="width:10%;"><u>Total Cost</u></th> </tr> <tr> <td></td> <td style="text-align: center;"><u>Actual</u></td> <td style="text-align: center;"><u>Estimate</u></td> <td style="text-align: center;"><u>Complete</u></td> <td></td> </tr> </thead> <tbody> <tr> <td>(U) Other APPN</td> <td colspan="9"> Note: All the Services and several DoD agencies have many programs which interface with or support GBS. Examples include: Defense Information System Network (DISN), DISA Information Dissemination Management Program, ARPA Battlefield Awareness and Data Dissemination (BADD) Advanced Concept Tactical Demonstration (ACTD), ARPA-DISA Bosnia Command Control Augmentation (BC2A) Program including Joint Broadcast Service (JBS), Navy UFO Program, Army Ground Terminal Programs, Navy SATCOM Ship Terminal Program, and Air Force MILSATCOM Terminals (PE 0303601): AF GBS Receive Terminals (Project 836780, line P-67, PE 0303601F, Milstar Satellite Comm Sys, Other Procurement, AF Ground Multiband Terminal (GMT) Develop, and AF Wideband Terminal (AWT) Development. </td> </tr> </tbody> </table> <p>(U) <u>D. Acquisition Strategy</u> (U) The acquisition strategy is a spiral development/incremental build approach using Integrated Product Development (IPD)/Integrated Product Team (IPT) approach.</p> <p>(U) <u>E. Schedule Profile</u></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:10%;"></th> <th colspan="4" style="text-align: center;"><u>FY 2001</u></th> <th colspan="4" style="text-align: center;"><u>FY 2002</u></th> <th colspan="4" style="text-align: center;"><u>FY 2003</u></th> </tr> </thead> <tbody> <tr> <td>(U) See schedule profile in PE 0603840F</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> <td style="text-align: center;">4</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> <td style="text-align: center;">4</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> <td style="text-align: center;">4</td> </tr> </tbody> </table> <p>* = Completed Event; X = Planned Event</p>									<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>		<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>		(U) Other APPN	Note: All the Services and several DoD agencies have many programs which interface with or support GBS. Examples include: Defense Information System Network (DISN), DISA Information Dissemination Management Program, ARPA Battlefield Awareness and Data Dissemination (BADD) Advanced Concept Tactical Demonstration (ACTD), ARPA-DISA Bosnia Command Control Augmentation (BC2A) Program including Joint Broadcast Service (JBS), Navy UFO Program, Army Ground Terminal Programs, Navy SATCOM Ship Terminal Program, and Air Force MILSATCOM Terminals (PE 0303601): AF GBS Receive Terminals (Project 836780, line P-67, PE 0303601F, Milstar Satellite Comm Sys, Other Procurement, AF Ground Multiband Terminal (GMT) Develop, and AF Wideband Terminal (AWT) Development.										<u>FY 2001</u>				<u>FY 2002</u>				<u>FY 2003</u>				(U) See schedule profile in PE 0603840F	1	2	3	4	1	2	3	4	1	2	3	4
	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>																																																						
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>																																																							
(U) Other APPN	Note: All the Services and several DoD agencies have many programs which interface with or support GBS. Examples include: Defense Information System Network (DISN), DISA Information Dissemination Management Program, ARPA Battlefield Awareness and Data Dissemination (BADD) Advanced Concept Tactical Demonstration (ACTD), ARPA-DISA Bosnia Command Control Augmentation (BC2A) Program including Joint Broadcast Service (JBS), Navy UFO Program, Army Ground Terminal Programs, Navy SATCOM Ship Terminal Program, and Air Force MILSATCOM Terminals (PE 0303601): AF GBS Receive Terminals (Project 836780, line P-67, PE 0303601F, Milstar Satellite Comm Sys, Other Procurement, AF Ground Multiband Terminal (GMT) Develop, and AF Wideband Terminal (AWT) Development.																																																														
	<u>FY 2001</u>				<u>FY 2002</u>				<u>FY 2003</u>																																																						
(U) See schedule profile in PE 0603840F	1	2	3	4	1	2	3	4	1	2	3	4																																																			
Project 2679			Page 4 of 13 Pages			Exhibit R-2A (PE 0603854F)																																																									

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2002				
BUDGET ACTIVITY				PE NUMBER AND TITLE			PROJECT				
04 - Demonstration and Validation				0603854F Wideband MILSATCOM (Space)			2679				
(U) A. Project Cost Breakdown (\$ in Thousands)											
						<u>FY 2001</u>		<u>FY 2002</u>		<u>FY 2003</u>	
(U)	System Development and Test					20,872					
(U)	Phase 2 Government System Integration					2,995					
(U)	Program Support					2,888					
(U)	Field Survey and Integration					1,210					
(U)	Navy Terminal Support					2,300					
(U)	System Test & Evaluation Support					1,299					
(U)	Total					31,564					
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)											
(U) Performing Organizations:											
	<u>Contractor or Government Performing Activity</u>	<u>Contract Method/Type or Funding Vehicle</u>	<u>Award or Obligation Date</u>	<u>Performing Activity EAC</u>	<u>Project Office EAC</u>	<u>Total Prior to FY 2001</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Product Development Organizations</u>										
	Raytheon Sys Co.	CPAF	18 Nov 97	N/A	N/A	124,057	20,872				144,929
	Government/Various	Various	Various	N/A	N/A	65,343	6,505				71,848
	<u>Support and Management Organizations</u>										
	Various	Various	Various	N/A	N/A	35,790	2,888				38,678
	<u>Test and Evaluation Organizations</u>										
	Support for Development & Operational Test	Various	Various	N/A	N/A	1,871	1,299				3,170
(U) Government Furnished Property:											
	<u>Item Description</u>	<u>Contract Method/Type or Funding Vehicle</u>	<u>Award or Obligation Date</u>	<u>Delivery Date</u>		<u>Total Prior to FY 2001</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget to Complete</u>	<u>Total Program</u>
Project 2679											

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2002		
BUDGET ACTIVITY 04 - Demonstration and Validation				PE NUMBER AND TITLE 0603854F Wideband MILSATCOM (Space)			PROJECT 2679		
(U) Government Furnished Property Continued:									
	<u>Contract</u>								
	<u>Method/Type</u>	<u>Award or</u>							
<u>Item</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Delivery</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Description</u>	<u>Vehicle</u>	<u>Date</u>	<u>Date</u>	<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Complete</u>	<u>Program</u>
<u>Product Development Property</u>									
TBD									
<u>Support and Management Property</u>									
TBD									
<u>Test and Evaluation Property</u>									
TBD									
				<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Subtotals</u>				<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Complete</u>	<u>Program</u>
Subtotal Product Development				189,400	27,377				216,777
Subtotal Support and Management				35,790	2,888				38,678
Subtotal Test and Evaluation				1,871	1,299				3,170
Total Project				227,061	31,564				258,625

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)								DATE February 2002			
BUDGET ACTIVITY 04 - Demonstration and Validation				PE NUMBER AND TITLE 0603854F Wideband MILSATCOM (Space)				PROJECT 4811			
COST (\$ in Thousands)		FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost	
4811	Wideband Gapfiller	78,011	81,973	1,996	1,809	1,935	0	0	0	171,303	
<p>(U) <u>A. Mission Description</u> The Wideband Gapfiller Satellites (WGS) will provide the DoD with high data rate military satellite communication (MILSATCOM) services in accordance with the Joint Space Management Board approved MILSATCOM Architecture dated Aug 96, the MILSATCOM Capstone Requirements Document approved by the Joint Requirements Oversight Council (JROC) in Oct 97, and JROC approved WGS Operational Requirements Document (May 00). This program was conceived to augment the near term 'bandwidth Gap' in Warfighter communication needs. The critical first WGS launch is scheduled for 2QFY04 with the remaining two launches scheduled in FY05.</p> <p>These dual frequency Wideband Gapfiller Satellites will augment the DoD's two-way Defense Satellite Communications System X-band service and one-way Global Broadcast Service Ka-band capabilities. In addition, WGS will provide a new high capacity two-way Ka-band service.</p> <p>(U) <u>FY 2001 (\$ in Thousands)</u> (U) \$69,011 Began EMD, including the Non-Recurring Engineering for all three satellites (U) \$3,418 Began Joint Terminal Engineering Office (JTEO) Support (U) \$5,582 Began Program Support (U) \$78,011 Total</p> <p>(U) <u>FY 2002 (\$ in Thousands)</u> (U) \$76,057 Complete EMD, including the NRE for all three satellites (U) \$3,867 Continue JTEO Support (U) \$2,049 Continue Program Support (U) \$81,973 Total</p> <p>(U) <u>FY 2003 (\$ in Thousands)</u> (U) \$1,996 Continue JTEO Support (U) \$0 Program Support accomplished in procurement appropriation (U) \$1,996 Total</p>											
Project 4811				Page 7 of 13 Pages				Exhibit R-2A (PE 0603854F)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)							DATE February 2002			
BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT		
04 - Demonstration and Validation				0603854F Wideband MILSATCOM (Space)				4811		
(U) <u>B. Project Change Summary</u>										
No change.										
(U) <u>C. Other Program Funding Summary (\$ in Thousands)</u>										
		<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>
		<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U)	MPAF, PE 0303600F, WGS, Line P-18, Line P-19	24,652	370,956	189,666	18,657	24,386	14,326	14,481	0	657,124
(U)	OPAF, PE 0603854F, WGS PIPs	0	0	16,092	32,226	0	0	0	0	48,318
(U)	OPAF, PE 0303600F, CCS-C AF Terminals in PE 0303601F, Other Procurement, AF	0	0	5,597	8,357	2,204	0	0	0	16,158
(U) <u>D. Acquisition Strategy</u>										
The WGS program will make maximum use of commercial practices and technology in its FAR Part 12, FFP acquisition. All three satellites are purchased with Procurement funds, and the Non-Recurring Engineering (NRE) is funded in RDT&E. The WGS received MS II/III approval on 6 Nov 00 and awarded a FFP contract on 2 Jan 01.										
(U) <u>E. Schedule Profile</u>										
				<u>FY 2001</u>			<u>FY 2002</u>			<u>FY 2003</u>
				1	2	3	4	1	2	3
(U)	DAB - MS II/III			*						
(U)	EMD/Production Contract Award				*					
(U)	EMD Completion								X	
x = planned event; * = completed event										
Project 4811				Page 8 of 13 Pages				Exhibit R-2A (PE 0603854F)		

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2002				
BUDGET ACTIVITY 04 - Demonstration and Validation				PE NUMBER AND TITLE 0603854F Wideband MILSATCOM (Space)				PROJECT 4811			
(U) A. Project Cost Breakdown (\$ in Thousands)											
						<u>FY 2001</u>		<u>FY 2002</u>		<u>FY 2003</u>	
(U)	EMD					69,011		76,057		0	
(U)	JTEO Support					3,418		3,867		1,996	
(U)	Program Support					5,582		2,049		0	
(U)	Total					78,011		81,973		1,996	
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)											
(U) Performing Organizations:											
	<u>Contractor or Government</u>	<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Performing Activity</u>	<u>Project Office</u>	<u>Total Prior to FY 2001</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Performing Activity</u>	<u>or Funding Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>						
<u>Product Development Organizations</u>											
	WGS Satellite EMD	FFP	Jan 01	148,021	148,021	0	69,011	76,057	0	0	145,068
<u>Support and Management Organizations</u>											
	JTEO	PR	Continuing	11,404	11,404	0	3,418	3,867	1,996	3,744	13,025
	Pre-EMD	Form 277	Dec 99	4,910	4,910	4,910	0	0	0	0	4,910
	International Studies	SS/CFFF/AF	Various	669	669	669	0	0	0	0	669
	Program Support	Various	Various	8,909	8,909	0	5,582	2,049	0	0	7,631
<u>Test and Evaluation Organizations</u>											
	AFOTEC, DT&E	TBD	TBD	TBD	TBD						
(U) Government Furnished Property:											
	<u>Item</u>	<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Delivery</u>		<u>Total Prior to FY 2001</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Description</u>	<u>or Funding Vehicle</u>	<u>Date</u>	<u>Date</u>							
<u>Product Development Property</u>											
	TBD										

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE	
BUDGET ACTIVITY		PROJECT	
04 - Demonstration and Validation	0603854F Wideband MILSATCOM (Space)	February 2002	
<p>(U) <u>Government Furnished Property Continued:</u></p> <p><u>Support and Management Property</u> TBD</p> <p><u>Test and Evaluation Property</u> TBD</p>			
	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>
	<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>
		<u>Budget</u>	<u>Budget to</u>
		<u>FY 2003</u>	<u>Complete</u>
		<u>Total</u>	
<u>Subtotals</u>			
Subtotal Product Development	0	69,011	76,057
Subtotal Support and Management	5,579	9,000	1,996
Subtotal Test and Evaluation			3,744
Total Project	5,579	78,011	81,973
			1,996
			3,744
			171,303

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	DATE February 2002
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BUDGET ACTIVITY 04 - Demonstration and Validation	PE NUMBER AND TITLE 0603854F Wideband MILSATCOM (Space)	PROJECT 4870
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COST (\$ in Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
4870 Command & Control System Consolidated (CCSC)	9,547	17,060	18,013	41,208	20,621	14,845	0	0	121,294

(U) **A. Mission Description**
 The MILSATCOM Command and Control System-Consolidated (CCS-C) system is being acquired to provide integrated launch and on-orbit command and control (C2) functionality for MILSATCOM satellites as the current capability provided by the Air Force Satellite Control Network (PE 0305110F) phases out according to plan. CCS-C will use modified commercial off the shelf hardware/software to control all emerging and legacy MILSATCOM systems (six different constellations) at reduced operating and maintenance costs.

(U) **FY 2001 (\$ in Thousands)**
 (U) \$6,247 Began Concept Demonstration Phase
 (U) \$3,300 Began Program Support
 (U) \$9,547 Total

(U) **FY 2002 (\$ in Thousands)**
 (U) \$953 Complete Concept Demonstration Phase
 (U) \$12,753 Begin Development of Command and Control Functionality
 (U) \$3,354 Continue Program Support
 (U) \$17,060 Total

(U) **FY 2003 (\$ in Thousands)**
 (U) \$15,310 Continue development of command and control functionality
 (U) \$2,703 Continue Program Support
 (U) \$18,013 Total

(U) **B. Project Change Summary**
 (U) None.

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)							DATE		
							February 2002		
BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT	
04 - Demonstration and Validation				0603854F Wideband MILSATCOM (Space)				4870	
(U) C. Other Program Funding Summary (\$ in Thousands)									
	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E									
(U) Other APPN									
(U) OPAF, PE 030600F, CCS-C BA-11 Line-61		0	5,597	8,357	2,204	0	0	0	16,158
(U) D. Acquisition Strategy									
Competitive contracts were awarded in Feb 01 to two teams to demonstrate capabilities - the concept demonstration phase. Both contain fixed price options supporting down selection to a single team in 2QFY02 to develop the final functionality - the development phase.									
(U) E. Schedule Profile									
				<u>FY 2001</u>		<u>FY 2002</u>		<u>FY 2003</u>	
				1	2	3	4	1	2
(U) Concept Demonstration Contract Award					*				
(U) Completion of Concept Demonstration									X
(U) Development Contract Downselect									X
* = Completed Event									
X = Planned Event									

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)								DATE February 2002		
BUDGET ACTIVITY 04 - Demonstration and Validation				PE NUMBER AND TITLE 0603854F Wideband MILSATCOM (Space)				PROJECT 4870		
(U) A. Project Cost Breakdown (\$ in Thousands)										
						<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>		
(U)	Concept Demonstration Phase					6,247	588	0		
(U)	Development Phase					0	13,273	15,310		
(U)	Program Support					3,300	3,199	2,703		
(U)	Total					9,547	17,060	18,013		
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)										
(U) Performing Organizations:										
<u>Contractor or</u>	<u>Contract</u>									
<u>Government</u>	<u>Method/Type</u>	<u>Award or</u>	<u>Performing</u>	<u>Project</u>						
<u>Performing</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Activity</u>	<u>Office</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Activity</u>	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>	<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Complete</u>	<u>Program</u>
<u>Product Development Organizations</u>										
Demonstration Contractors	FFP	Feb 01	9,047	9,047	0	6,247	588	0	0	6,835
Development Contractor	CPAF	Feb 02	94,764	94,764	0	0	13,273	15,310	64,528	93,111
<u>Support and Management Organizations</u>										
Various		Various			0	3,300	3,199	2,703	7,728	16,930
<u>Test and Evaluation Organizations</u>										
					<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Subtotals</u>					<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Complete</u>	<u>Program</u>
Subtotal Product Development					0	6,247	13,861	15,310	64,528	99,946
Subtotal Support and Management					0	3,300	3,199	2,703	7,728	16,930
Subtotal Test and Evaluation										
Total Project					0	9,547	17,060	18,013	72,256	116,876

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 2002
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BUDGET ACTIVITY 04 - Demonstration and Validation	PE NUMBER AND TITLE 0603856F Air Force/National Program Cooperation (AFNPC)	PROJECT 4782
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	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
4782 Air Force/National Program Cooperation (AFNPC)	2,198	2,409	8,829	3,324	0	1,846	1,880	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0

(U) A. Mission Description
 This Program Element supports collaborative Air Force-intelligence community space efforts. At present, it funds two items that both began in FY 1999:

1) The AF/NRO Integration Planning Group (ANIPG) engenders greater AF-NRO synergies in R&D, operations, and programs by developing options for increasing integration across the entire range of AF and NRO space activities. ANIPG-developed recommendations on policies, plans, programs, requirements, architectures, acquisition, and resources are submitted to HQ USAF and NRO staffs and leadership for mutual agreement and implementation. Past, present, and future initiative areas include precision targeting, communications, combat identification, combat search & rescue, mission planning/rehearsal, joint acquisition, and reduction in operations personnel tempos for airborne intelligence, surveillance, and reconnaissance assets. ANIPG efforts are key facilitators for enhancing AF and NRO capabilities, increasing the cost-effectiveness of their space activities, and preventing duplication of efforts through low-cost, high-benefit initiatives. Funding level is determined by AF-NRO Memorandum of Agreement.

2) The Space-Based Infrared System Technical Intelligence (SBIRS TI) project develops capabilities to exploit SBIRS High sensor data for the technical intelligence mission. These enhancements provide data extraction, processing, exploitation, and dynamic sensor cross-cueing capabilities needed to meet fundamental SBIRS requirements for strategic and theater missile defense, technical intelligence, and battlespace characterization. The project assists in satisfying SBIRS Operational Requirements Document threshold requirements for real-time technical intelligence by (a) developing backup centers for remotely-controlled TI pre-processing at remote ground stations and (b) integrating SBIRS data with other intelligence source data for synergistic effects. Project designs/develops Collaborative Technical Inteloigence Center/Back-up Technical Intelligence Center (CTIC/BTIC) which will be electronically connedted into the SBIRS system. Additionally, the project develops Digital Integrated Communications Electronic System (DICES) terminals that will be used to establish connectivity among the MCS, IMCS-B, Host Ground Station, and the Technical Intelligence Centers (TIC, CTIC, and BTIC) and will be used to support launch and on-orbit testing of the Highly Elliptical Orbit (HEO) Payload.

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 2002																		
BUDGET ACTIVITY 04 - Demonstration and Validation	PE NUMBER AND TITLE 0603856F Air Force/National Program Cooperation (AFNPC)	PROJECT 4782																		
<p>(U) <u>A. Mission Description Continued</u></p> <p>3) Obtained TI is used in real-time and non-real-time to maximize operational weapons system effectiveness by optimizing detection, classification/typing, and negation capabilities for warning and active defense systems. Beyond Operational Requirements Document threshold requirements, SBIRS TI efforts are meant to establish real-time and non-real-time collaborative efforts in order to maximize SBIRS tasking efforts.</p> <p>The intelligence community provides additional funds for these joint projects as reported in Congressional Budget Justification Books.</p> <p>(U) <u>FY 2001 (\$ in Thousands)</u></p> <table border="0"> <tr> <td>(U) \$882</td> <td>Continued technical support to the AF/NRO Integration Planning Group (ANIPG)</td> </tr> <tr> <td>(U) \$1,316</td> <td>Continued to develop processing capabilities to exploit SBIRS sensor data for technical intelligence</td> </tr> <tr> <td>(U) \$2,198</td> <td>Total</td> </tr> </table> <p>(U) <u>FY 2002 (\$ in Thousands)</u></p> <table border="0"> <tr> <td>(U) \$897</td> <td>Continue technical support to the AF/NRO Integration Planning Group (ANIPG)</td> </tr> <tr> <td>(U) \$1,512</td> <td>Continue to develop processing capabilities to exploit SBIRS sensor data for technical intelligence</td> </tr> <tr> <td>(U) \$2,409</td> <td>Total</td> </tr> </table> <p>(U) <u>FY 2003 (\$ in Thousands)</u></p> <table border="0"> <tr> <td>(U) \$900</td> <td>Continue technical support to the AF/NRO Integration Planning Group (ANIPG)</td> </tr> <tr> <td>(U) \$7,929</td> <td>Funds the Collaborative Technical Intelligence Center and the Back-up Technical Intelligence Center (CTIC and BTIC). Also funded is the Remote TI Console at the Host Ground Station, as well as the connectivity to the Global Connectivity Service and the NSA Secure Telephone System/Digital Integrated Communications Electronic System (NSTS/DICES).</td> </tr> <tr> <td>(U) \$8,829</td> <td>Total</td> </tr> </table> <p>(U) <u>B. Budget Activity Justification</u></p> <p>(U) This PE is in Budget Activity 4, Demonstration and Validation, because these projects involve testing and demonstrating new cooperative efforts.</p>			(U) \$882	Continued technical support to the AF/NRO Integration Planning Group (ANIPG)	(U) \$1,316	Continued to develop processing capabilities to exploit SBIRS sensor data for technical intelligence	(U) \$2,198	Total	(U) \$897	Continue technical support to the AF/NRO Integration Planning Group (ANIPG)	(U) \$1,512	Continue to develop processing capabilities to exploit SBIRS sensor data for technical intelligence	(U) \$2,409	Total	(U) \$900	Continue technical support to the AF/NRO Integration Planning Group (ANIPG)	(U) \$7,929	Funds the Collaborative Technical Intelligence Center and the Back-up Technical Intelligence Center (CTIC and BTIC). Also funded is the Remote TI Console at the Host Ground Station, as well as the connectivity to the Global Connectivity Service and the NSA Secure Telephone System/Digital Integrated Communications Electronic System (NSTS/DICES).	(U) \$8,829	Total
(U) \$882	Continued technical support to the AF/NRO Integration Planning Group (ANIPG)																			
(U) \$1,316	Continued to develop processing capabilities to exploit SBIRS sensor data for technical intelligence																			
(U) \$2,198	Total																			
(U) \$897	Continue technical support to the AF/NRO Integration Planning Group (ANIPG)																			
(U) \$1,512	Continue to develop processing capabilities to exploit SBIRS sensor data for technical intelligence																			
(U) \$2,409	Total																			
(U) \$900	Continue technical support to the AF/NRO Integration Planning Group (ANIPG)																			
(U) \$7,929	Funds the Collaborative Technical Intelligence Center and the Back-up Technical Intelligence Center (CTIC and BTIC). Also funded is the Remote TI Console at the Host Ground Station, as well as the connectivity to the Global Connectivity Service and the NSA Secure Telephone System/Digital Integrated Communications Electronic System (NSTS/DICES).																			
(U) \$8,829	Total																			
Project 4782	Page 2 of 6 Pages	Exhibit R-2 (PE 0603856F)																		

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 2002							
BUDGET ACTIVITY		PE NUMBER AND TITLE		PROJECT					
04 - Demonstration and Validation		0603856F Air Force/National Program Cooperation (AFNPC)		4782					
(U) C. Program Change Summary (\$ in Thousands)									
		<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Total Cost</u>				
(U)	Previous President's Budget	2,348	4,433	8,860	TBD				
(U)	Appropriated Value	2,370	2,433						
(U)	Adjustments to Appropriated Value								
	a. Congressional/General Reductions	-17	-24						
	b. Small Business Innovative Research	-150							
	c. Omnibus or Other Above Threshold Reprogram								
	d. Below Threshold Reprogram								
	e. Rescissions	-5							
(U)	Adjustments to Budget Years Since FY 2002 PBR			-31					
(U)	Current Budget Submit/FY 2003 PBR	2,198	2,409	8,829	TBD				
(U)	<u>Significant Program Changes:</u>								
	FY 01: Adjustments supports higher Air Force priorities.								
	FY 02: Congressional Appropriation reduced request by \$2 million for higher transformation priorities, resulting in an approximate 50% Level-of-Effort (LOE) reduction in both ANIPG and SBIRS TI efforts.								
(U) D. Other Program Funding Summary (\$ in Thousands)									
	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U)	Intelligence Community*								
	*Not available								
(U) E. Acquisition Strategy									
	ANIPG activities are level of effort and use SETA support contracts and FFRDC. SBIRS TI activities are executed as part of the SBIRS High program on its cost plus award fee contract.								
(U) F. Schedule Profile									
		<u>FY 2001</u>		<u>FY 2002</u>		<u>FY 2003</u>			

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2002				
BUDGET ACTIVITY					PE NUMBER AND TITLE			PROJECT			
04 - Demonstration and Validation					0603856F Air Force/National Program Cooperation (AFNPC)			4782			
(U) A. Project Cost Breakdown (\$ in Thousands)											
						<u>FY 2001</u>		<u>FY 2002</u>		<u>FY 2003</u>	
(U)	Technical support to the AF/NRO Integration Planning Group					882		897		1,626	
(U)	Develop processing capability to exploit SBIRS data for TI					1,316		1,512		7,203	
(U)	Total					2,198		2,409		8,829	
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)											
(U) Performing Organizations:											
	<u>Contractor or Government Performing Activity</u>	<u>Contract Method/Type or Funding Vehicle</u>	<u>Award or Obligation Date</u>	<u>Performing Activity EAC</u>	<u>Project Office EAC</u>	<u>Total Prior to FY 2001</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Product Development Organizations</u>											
(U)	SMC	MIPR	12/98	14,177	14,177	1,852	1,316	1,512	7,929	1,568	14,177
<u>Support and Management Organizations</u>											
(U)	ANIPG	MIPR	10/98	Continuing	Continuing	2,150	882	897	900	Continuing	TBD
<u>Test and Evaluation Organizations</u>											
Not Applicable											
(U) Government Furnished Property:											
	<u>Item Description</u>	<u>Contract Method/Type or Funding Vehicle</u>	<u>Award or Obligation Date</u>	<u>Delivery Date</u>		<u>Total Prior to FY 2001</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Product Development Property</u>											
None											
<u>Support and Management Property</u>											
None											
Project 4782					Page 5 of 6 Pages			Exhibit R-3 (PE 0603856F)			

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)					DATE February 2002	
BUDGET ACTIVITY		PE NUMBER AND TITLE			PROJECT	
04 - Demonstration and Validation		0603856F Air Force/National Program Cooperation (AFNPC)			4782	
(U) <u>Government Furnished Property Continued:</u>						
<u>Test and Evaluation Property</u>						
None						
		<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>
		<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Complete</u>
						<u>Program</u>
<u>Subtotals</u>		1,852	1,316	1,512	7,929	14,177
Subtotal Product Development		2,150	882	897	900	TBD
Subtotal Support and Management						TBD
Subtotal Test and Evaluation						
Total Project		4,002	2,198	2,409	8,829	TBD

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 2002		
BUDGET ACTIVITY 04 - Demonstration and Validation				PE NUMBER AND TITLE 0603858F Space-Based Radar Dem/Val				PROJECT A004		
COST (\$ in Thousands)		FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
A004	SBR Concept and Technology Development	0	0	47,859	81,995	81,385	105,881	235,887	Continuing	TBD
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0

Note 1: In FY 2003 Project #5009, SBR Concept and Technology Development, efforts were transferred from PE 0604251F (BA 5), Space-Based Radar EMD, to PE 0603858F, Space-Based Radar (SBR) Dem/Val (BA 4), Project #A004, SBR Concept and Technology Development, in order to correct a database error which loaded the funding in the wrong PE.

Note 2: In FY03, the Space Based Radar program anticipates receiving \$43.0M from the Cost of War Transfer Account. These funds are not included in the FY03 Air Force baseline. Funding will be used to accelerate the program.

(U) A. Mission Description
 The 2001 Multi-Theater Target Tracking Capability (MT3C) Mission Needs Statement (MNS) establishes the requirement for continuous multi-theater surveillance, identification, tracking, and targeting of surface-moving targets. In November 2001 USD(AT&L) directed a focused requirements and risk reduction effort to provide a space element of a future air/space Intelligence, Surveillance, and Reconnaissance (ISR) system to satisfy the MT3C MNS.

The Space Based Radar (SBR) program is focused to mature technology and develop an ISR system capable of providing Ground Moving Target Indication (GMTI), Synthetic Aperture Radar (SAR) imaging, and Digital Terrain and Elevation Data (DTED) over a large portion of the Earth on a near-continuous basis. The system will maximize utility to the tactical war fighters through responsive tasking and timely data dissemination. The SBR system will allow military forces a 'deep-look' into denied areas of interest, on a non-intrusive basis without risk to personnel or resources. This can be done across the spectrum of conflict and simultaneously in multiple theaters -- not currently available with existing capabilities.

Technology maturation, risk reduction and concept development are essential elements of the SBR program strategy. Investments in key risk areas are focused to mature technologies leading to component design and demonstration. Concept development activities will focus on reducing risk, integrating technologies, and evaluating system level concepts within the broad range of the C2ISR architecture. Demonstrations as well as modeling and simulation will maximize the operational capabilities of the SBR system.

Project A004 Page 1 of 6 Pages Exhibit R-2 (PE 0603858F)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 2002																																													
BUDGET ACTIVITY 04 - Demonstration and Validation	PE NUMBER AND TITLE 0603858F Space-Based Radar Dem/Val	PROJECT A004																																													
<p>(U) <u>A. Mission Description Continued</u></p> <p>(U) <u>FY 2001 (\$ in Thousands)</u></p> <p>(U) \$0 No Activity</p> <p>(U) \$0 Total</p> <p>(U) <u>FY 2002 (\$ in Thousands)</u></p> <p>(U) \$0 No Activity - Program funded in PE 0604251F, Space-Based Radar (SBR) EMD</p> <p>(U) \$0 Total</p> <p>(U) <u>FY 2003 (\$ in Thousands)</u></p> <p>(U) \$23,052 Continue Technology Risk Reduction activities (Continuation of Electronically Scanned Array (ESA) effort; Continue on-board processing efforts; Continue BMC3 effort; Provide Demonstration support)</p> <p>(U) \$8,216 Continue Requirements Development (SBR system and operational requirements definition)</p> <p>(U) \$12,220 Begin Concept Definition for candidate operational system</p> <p>(U) \$4,371 Continue Program Support (Concept Evaluation, Schedule Management, Independent Cost Analysis, Technical Evaluation, Source Selection)</p> <p>(U) \$47,859 Total</p> <p>(U) <u>B. Budget Activity Justification</u></p> <p>This activity is a BA 4 because all efforts are included in the demonstration and validation phase and are necessary to evaluate integrated technologies in as realistic an operating environment as possible to assess the performance or cost reduction potential of advanced technology.</p> <p>(U) <u>C. Program Change Summary (\$ in Thousands)</u></p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 60%;"></th> <th style="width: 10%; text-align: center;"><u>FY 2001</u></th> <th style="width: 10%; text-align: center;"><u>FY 2002</u></th> <th style="width: 10%; text-align: center;"><u>FY 2003</u></th> <th style="width: 10%; text-align: center;"><u>Total Cost</u></th> </tr> </thead> <tbody> <tr> <td>(U) Previous President's Budget</td> <td></td> <td></td> <td style="text-align: center;">0</td> <td style="text-align: center;">TBD</td> </tr> <tr> <td>(U) Appropriated Value</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Appropriated Value</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> a. Congressional/General Reductions</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> b. Small Business Innovative Research</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> c. Omnibus or Other Above Threshold Reprogram</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> d. Below Threshold Reprogram</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> e. Rescissions</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>				<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Total Cost</u>	(U) Previous President's Budget			0	TBD	(U) Appropriated Value					(U) Adjustments to Appropriated Value					a. Congressional/General Reductions					b. Small Business Innovative Research					c. Omnibus or Other Above Threshold Reprogram					d. Below Threshold Reprogram					e. Rescissions				
	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Total Cost</u>																																											
(U) Previous President's Budget			0	TBD																																											
(U) Appropriated Value																																															
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Project A004	Page 2 of 6 Pages	Exhibit R-2 (PE 0603858F)																																													

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)							DATE February 2002		
BUDGET ACTIVITY			PE NUMBER AND TITLE				PROJECT		
04 - Demonstration and Validation			0603858F Space-Based Radar Dem/Val				A004		
(U) <u>C. Program Change Summary (\$ in Thousands) Continued</u>									
			<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Total Cost</u>			
(U)	Adjustments to Budget Years Since FY 2002 PBR				47,859				
(U)	Current Budget Submit/FY 2003 PBR				47,859		TBD		
	Note: FY02 funding (currently \$24.7 million) was loaded in PE 0604251F, Space-Based Radar (SBR) EMD (BA 5) out of necessity; however, all out year funding has been appropriately loaded in PE 0603858F, Space Based Radar Dem/Val (BA 4).								
(U) <u>Significant Program Changes:</u>									
	FY03: Follow-on funding has been programmed into the budget in PE 0603858F, Space-Based Radar (SBR) Dem/Val, to develop a viable and executable program.								
(U) <u>D. Other Program Funding Summary (\$ in Thousands)</u>									
	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U)	AF RDT&E								
(U)	RDT&E - AF, PE 0604251F, Space-Based Radar (SBR) EMD (BA 5)*		24,752						
(U)	Cost of War Transfer Account		43,000	203,000	283,000	373,000	281,000	0	1,183,000
(U)	Other APPN								
(U)	None								
	*Note: Due to database error and late receipt of PE, FY02 funds were loaded in this PE when appropriately, they should have been loaded in PE 0603858F, SBR Dem/Val (BA 4)								
(U) <u>E. Acquisition Strategy</u>									
	The Air Force will lead the SBR Joint Program Office with the National Reconnaissance Office (NRO) as the principal partner. The funding is all Air Force and the acquisition strategy will consist of a mixture of sole source and competitive award approaches.								
(U) <u>F. Schedule Profile</u>									
			<u>FY 2001</u>		<u>FY 2002</u>		<u>FY 2003</u>		

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE February 2002											
BUDGET ACTIVITY					PE NUMBER AND TITLE					PROJECT											
04 - Demonstration and Validation					0603858F Space-Based Radar Dem/Val					A004											
(U) <u>F. Schedule Profile Continued</u>																					
					<u>FY 2001</u>							<u>FY 2002</u>							<u>FY 2003</u>		
					1	2	3	4	1	2	3	4	1	2	3	4					
(U)	Begin AoA									X											
(U)	Begin Requirements Development									X											
(U)	Begin Technology Risk Reduction									X											
(U)	Begin Concept Definition																	X			
	* = Completed Event; X = Planned Event																				
Project A004					Page 4 of 6 Pages					Exhibit R-2 (PE 0603858F)											

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2002			
BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT		
04 - Demonstration and Validation				0603858F Space-Based Radar Dem/Val				A004		
(U) A. Project Cost Breakdown (\$ in Thousands)										
						<u>FY 2001</u>		<u>FY 2002</u>		<u>FY 2003</u>
(U)	Technology Risk Reduction effort									23,052
(U)	Concept Definition for candidate operational system									12,220
(U)	Requirements Development									8,216
(U)	Program Support									4,371
(U)	Total									47,859
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)										
(U) Performing Organizations:										
<u>Contractor or</u>	<u>Contract</u>									
<u>Government</u>	<u>Method/Type</u>	<u>Award or</u>	<u>Performing</u>	<u>Project</u>						
<u>Performing</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Activity</u>	<u>Office</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Activity</u>	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>	<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Complete</u>	<u>Program</u>
<u>Product Development Organizations</u>										
AFSPC Requirements Development	FFRDC/SETA and GSA Contracts	Various	Continuing	Continuing				8,216	Continuing	TBD
Technology Risk Reduction Effort	Add to Existing Contract and other contracts as appropriate	TBD						23,052	Continuing	TBD
Concept Definition Contracts	Various Competitive Contracts	TBD						12,220	Continuing	TBD
<u>Support and Management Organizations</u>										
SMC & AFSPC	TBD	Feb 02						4,371	Continuing	TBD
Project A004			Page 5 of 6 Pages				Exhibit R-3 (PE 0603858F)			

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)				DATE					
BUDGET ACTIVITY				PE NUMBER AND TITLE			PROJECT		
04 - Demonstration and Validation				0603858F Space-Based Radar Dem/Val			A004		
(U) <u>Performing Organizations Continued:</u>									
<u>Test and Evaluation Organizations</u>									
N/A									
(U) <u>Government Furnished Property:</u>									
	<u>Contract</u>	<u>Award or</u>							
	<u>Method/Type</u>	<u>Obligation</u>	<u>Delivery</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Item</u>	<u>or Funding</u>	<u>Date</u>	<u>Date</u>	<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Complete</u>	<u>Program</u>
<u>Description</u>	<u>Vehicle</u>	<u>Date</u>	<u>Date</u>						
<u>Product Development Property</u>									
None									
<u>Support and Management Property</u>									
None									
<u>Test and Evaluation Property</u>									
None									
				<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Subtotals</u>				<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Complete</u>	<u>Program</u>
Subtotal Product Development							43,488	TBD	TBD
Subtotal Support and Management							4,371	TBD	TBD
Subtotal Test and Evaluation									
Total Project							47,859	TBD	TBD

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 2002	
BUDGET ACTIVITY 04 - Demonstration and Validation				PE NUMBER AND TITLE 0603859F Pollution Prevention				PROJECT 4852	
COST (\$ in Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
4852 Pollution Prevention	2,408	0	2,743	2,792	2,842	2,897	2,952	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0
<p>(U) <u>A. Mission Description</u> Funds will be used to target R&D activities that demonstrate and validate alternative aircraft painting/depainting, maintenance processes that reduce compliance burden associated with National Emissions Standards for Hazardous Air Pollutants (Clean Air Act driven), and other hazardous waste reduction Dem/Val requirements. Specifically, funds will target pollution prevention technologies, including replacement of chromate conversion coating on aluminum and magnesium based metals, nonchromated primers to replace zinc chromate, and environmentally safe replacement for cadmium plating.</p> <p>(U) <u>FY 2001 (\$ in Thousands)</u> (U) \$478 Resource Conservation and Recovery Act (RCRA) Subtitle C - Hazardous Waste (U) \$95 Resource Conservation and Recovery Act (RCRA) Subtitle D - Solid Waste (U) \$859 Clean Air Act (U) \$225 Clean Water Act (U) \$525 Hazardous Material Reduction (U) \$226 Other (U) \$2,408 Total</p> <p>(U) <u>FY 2002 (\$ in Thousands)</u> (U) \$0 Resource Conservation and Recovery Act (RCRA) Subtitle C - Hazardous Waste (U) \$0 Clean Air Act (U) \$0 Clean Water Act (U) \$0 Hazardous Material Reduction (U) \$0 Other (U) \$0 Total</p>									
Project 4852			Page 1 of 5 Pages				Exhibit R-2 (PE 0603859F)		

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 2002																																																																			
BUDGET ACTIVITY 04 - Demonstration and Validation	PE NUMBER AND TITLE 0603859F Pollution Prevention	PROJECT 4852																																																																			
<p>(U) <u>A. Mission Description Continued</u></p> <p>(U) <u>FY 2003 (\$ in Thousands)</u></p> <table style="width:100%; border-collapse: collapse;"> <tr> <td style="width: 10%;">(U) \$779</td> <td>Resource Conservation and Recovery Act (RCRA) Subtitle C - Hazardous Waste</td> </tr> <tr> <td>(U) \$1,346</td> <td>Clean Air Act</td> </tr> <tr> <td>(U) \$199</td> <td>Clean Water Act</td> </tr> <tr> <td>(U) \$299</td> <td>Hazardous Material Reduction</td> </tr> <tr> <td>(U) \$120</td> <td>Other</td> </tr> <tr> <td>(U) \$2,743</td> <td>Total</td> </tr> </table> <p>(U) <u>B. Budget Activity Justification</u></p> <p>This program is in Budget Authority (BA) 4, Demonstration and Validation, because this account is primarily for Research, Demonstration, Testing and Evaluation demonstration and validation of pollution prevention technologies to eliminate/reduce hazardous materials/waste and overall total ownership costs to the Air Force. BA 6, Management and Support, was the prior BA that will terminate the end of FY00.</p> <p>(U) <u>C. Program Change Summary (\$ in Thousands)</u></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 55%;"></th> <th style="width: 10%; text-align: center;"><u>FY 2001</u></th> <th style="width: 10%; text-align: center;"><u>FY 2002</u></th> <th style="width: 10%; text-align: center;"><u>FY 2003</u></th> <th style="width: 15%; text-align: center;"><u>Total Cost</u></th> </tr> </thead> <tbody> <tr> <td>(U) Previous President's Budget</td> <td style="text-align: center;">2,543</td> <td style="text-align: center;">2,688</td> <td style="text-align: center;">2,743</td> <td style="text-align: center;">TBD</td> </tr> <tr> <td>(U) Appropriated Value</td> <td style="text-align: center;">2,543</td> <td style="text-align: center;">0</td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Appropriated Value</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td style="padding-left: 20px;">a. Congressional/General Reductions</td> <td style="text-align: center;">-24</td> <td></td> <td></td> <td></td> </tr> <tr> <td style="padding-left: 20px;">b. Small Business Innovative Research</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td style="padding-left: 20px;">c. Omnibus or Other Above Threshold Reprogram</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td style="padding-left: 20px;">d. Below Threshold Reprogram</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td style="padding-left: 20px;">e. Rescissions</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Budget Years Since FY 2002 PBR</td> <td style="text-align: center;">-111</td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) Current Budget Submit/FY 2003 PBR</td> <td style="text-align: center;">2,408</td> <td style="text-align: center;">0</td> <td style="text-align: center;">2,743</td> <td style="text-align: center;">TBD</td> </tr> </tbody> </table> <p>'Other' represents non-pay inflation adjustments to current budget year.</p> <p>(U) <u>Significant Program Changes:</u> FY02 budget request zeroed out by congressional action in FY02 Defense Appropriations Act.</p>			(U) \$779	Resource Conservation and Recovery Act (RCRA) Subtitle C - Hazardous Waste	(U) \$1,346	Clean Air Act	(U) \$199	Clean Water Act	(U) \$299	Hazardous Material Reduction	(U) \$120	Other	(U) \$2,743	Total		<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Total Cost</u>	(U) Previous President's Budget	2,543	2,688	2,743	TBD	(U) Appropriated Value	2,543	0			(U) Adjustments to Appropriated Value					a. Congressional/General Reductions	-24				b. Small Business Innovative Research					c. Omnibus or Other Above Threshold Reprogram					d. Below Threshold Reprogram					e. Rescissions					(U) Adjustments to Budget Years Since FY 2002 PBR	-111				(U) Current Budget Submit/FY 2003 PBR	2,408	0	2,743	TBD
(U) \$779	Resource Conservation and Recovery Act (RCRA) Subtitle C - Hazardous Waste																																																																				
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Project 4852	Page 2 of 5 Pages	Exhibit R-2 (PE 0603859F)																																																																			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE February 2002				
BUDGET ACTIVITY 04 - Demonstration and Validation					PE NUMBER AND TITLE 0603859F Pollution Prevention					PROJECT 4852				
(U) D. Other Program Funding Summary (\$ in Thousands)														
	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>					
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>						
(U) AF RDT&E														
(U) Other APPN														
Not Applicable														
(U) E. Acquisition Strategy														
Pollution Prevention activities are level of effort and use time and materials support contracts.														
(U) F. Schedule Profile														
				<u>FY 2001</u>				<u>FY 2002</u>			<u>FY 2003</u>			
			1	2	3	4	1	2	3	4	1	2	3	4
(U) Prototype Development			*								X			
(U) Demonstration/Validation				*	*							X	X	
(U) Contract Completion							X							X

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2002				
BUDGET ACTIVITY 04 - Demonstration and Validation				PE NUMBER AND TITLE 0603859F Pollution Prevention			PROJECT 4852				
(U) A. Project Cost Breakdown (\$ in Thousands)											
						<u>FY 2001</u>		<u>FY 2002</u>		<u>FY 2003</u>	
(U)	Development Test and Evaluation					405		0		457	
(U)	Operational Test and Evaluation					716		0		998	
(U)	Contractor Engineering Support					1,034		0		990	
(U)	Program Management Support					191		0		216	
(U)	Miscellaneous					62		0		82	
(U)	Total					2,408		0		2,743	
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)											
(U) Performing Organizations:											
	<u>Contractor or Government</u>	<u>Contract Method/Type</u>	<u>Award or Obligation Date</u>	<u>Performing Activity EAC</u>	<u>Project Office EAC</u>	<u>Total Prior to FY 2001</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Product Development Organizations</u>										
	Air Force Research Lab	TBD	30 Mar 00	N/A	N/A	0	680	0	817	Continuing	TBD
	<u>Support and Management Organizations</u>										
	Aerospace Systems Center	TBD	30 Mar 00	N/A	N/A	0	706	0	671	Continuing	TBD
	<u>Test and Evaluation Organizations</u>										
	Air Force Research Lab	TBD	30 Mar 00	N/A	N/A	0	1,022	0	1,255	Continuing	TBD
(U) Government Furnished Property:											
	<u>Item Description</u>	<u>Contract Method/Type or Funding Vehicle</u>	<u>Award or Obligation Date</u>	<u>Delivery Date</u>		<u>Total Prior to FY 2001</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Product Development Property</u>										
	None										

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE February 2002				
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT				
04 - Demonstration and Validation	0603859F Pollution Prevention	4852				
(U) <u>Government Furnished Property Continued:</u>						
<u>Support and Management Property</u>						
None						
<u>Test and Evaluation Property</u>						
None						
	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Subtotals</u>	<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Complete</u>	<u>Program</u>
Subtotal Product Development	0	680	0	817	TBD	TBD
Subtotal Support and Management	0	706	0	671	TBD	TBD
Subtotal Test and Evaluation	0	1,022	0	1,255	TBD	TBD
Total Project	0	2,408	0	2,743	TBD	TBD

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 2002		
BUDGET ACTIVITY 04 - Demonstration and Validation				PE NUMBER AND TITLE 0603860F Joint Precision Approach and Landing Systems - Dem/Val				PROJECT 4652		
COST (\$ in Thousands)		FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
4652	Precision Landing Systems	18,164	9,342	13,267	14,164	14,684	27,209	22,502	Continuing	TBD
Quantity of RDT&E Articles		0	0	0	0	0	0	0	0	0
<p>(U) A. Mission Description</p> <p>Joint Precision Approach and Landing System (JPALS) is a joint effort among the United States (U.S.) Air Force (AF), Navy, and Army. The AF is designated as the lead service. JPALS will define the future precision approach and landing system for the Department of Defense (DoD) to provide a joint operational capability for U.S. forces to perform assigned conventional and special operational missions from fixed-base, tactical, shipboard, and special mission environments under a wide range of meteorological conditions. Also, JPALS will ensure DoD maintains civil interoperability with current and projected Federal Aviation Administration (FAA) and North Atlantic Treaty Organization (NATO) member country landing systems. When complete, this effort will replace aging ship-board and ground-based precision landing systems (Instrument Landing System, Precision Approach Radar, Microwave Landing System, and Instrument Carrier Landing Systems). JPALS will facilitate DoD missions and training by enabling US forces to land on any airfield worldwide (land and sea) under peacetime and hostile conditions. JPALS also decreases the time required for deploying forces to a theater by providing an assured landing capability. JPALS provides increased inter- and intra-theater logistics throughput and the ability to fight at night and in inclement weather. Furthermore, JPALS will provide a precision landing capability where none currently exist. It will enhance interoperability for naval aircraft landing at shore-based fields operated by other services and ensure interoperability for the Civil Reserve Air Fleet at DoD airfields, especially in the expeditionary environment. The 1997, JPALS Analysis of Alternatives (AOA) reflected Local Area Differential Global Positioning System (LDGPS) as the most promising technology to meet the mission need. Development activities are initially focused on reducing technical risks. First, JPALS will employ quality guidance in the presence of GPS jamming. Second, it's architecture will be developed to integrate and synchronize with related Global Air Traffic Management (GATM) and GPS modernization initiatives. Third, JPALS will develop and integrate encrypted data links and antenna sets. Finally, JPALS will harmonize with U.S. and international civil satellite navigation and ground navigation systems development. This effort will result in avionics modifications to over 15,000 DoD aircraft. Because JPALS will result in a family of systems, other technologies will be monitored and evaluated such as an Autonomous Landing Capability (ALC) and the FAA local and wide area differential GPS alternatives.</p>										
Project 4652			Page 1 of 7 Pages				Exhibit R-2 (PE 0603860F)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE
BUDGET ACTIVITY		PROJECT
04 - Demonstration and Validation	0603860F Joint Precision Approach and Landing Systems - Dem/Val	February 2002 4652
(U) <u>A. Mission Description Continued</u>		
(U) <u>FY 2001 (\$ in Thousands)</u>		
(U) \$587	Completed Architecture Definition	
(U) \$997	Continued aircraft risk (anti-jam) reduction studies and integration analyses	
(U) \$8,901	Completed SRGPS risk reduction prototypes, studies and integration analyses	
(U) \$7,467	Continued development of LDGPS test bed	
(U) \$212	Completed LDGPS flight test and evaluation and modeling and simulation activities	
(U) \$18,164	Total	
(U) <u>FY 2002 (\$ in Thousands)</u>		
(U) \$3,553	Continue aircraft risk (anti-jam) reduction studies and integration analyses	
(U) \$1,183	Begin and complete ALC studies and deployable ground stations miniaturization	
(U) \$3,234	Continue development of LDGPS test bed	
(U) \$1,372	Begin studies and analyses to refine local LDGPS architecture	
(U) \$9,342	Total	
(U) <u>FY 2003 (\$ in Thousands)</u>		
(U) \$1,190	Continue aircraft risk (anti-jam) reduction studies and integration analyses	
(U) \$3,286	Continue development of LDGPS test bed	
(U) \$5,295	Continue studies and analyses to refine local LDGPS architecture	
(U) \$3,496	Begin modeling & simulation	
(U) \$13,267	Total	
(U) <u>B. Budget Activity Justification</u>		
This program is in budget activity 4, Demonstration and Validation, Research Category 6.4B, because supportability and manufacturing process design considerations must be identified and integrated into the precision landing architecture.		
Project 4652	Page 2 of 7 Pages	Exhibit R-2 (PE 0603860F)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE February 2002												
BUDGET ACTIVITY 04 - Demonstration and Validation					PE NUMBER AND TITLE 0603860F Joint Precision Approach and Landing						PROJECT 4652											
					Systems - Dem/Val																	
(U) C. Program Change Summary (\$ in Thousands)																						
					<u>FY 2001</u>		<u>FY 2002</u>		<u>FY 2003</u>		<u>Total Cost</u>											
(U) Previous President's Budget					18,092		9,554		13,032		TBD											
(U) Appropriated Value					18,092		9,554															
(U) Adjustments to Appropriated Value																						
a. Congressional/General Reductions							-212															
b. Small Business Innovative Research					-638																	
c. Omnibus or Other Above Threshold Reprogram																						
d. Below Threshold Reprogram					876																	
e. Rescissions					-166																	
(U) Adjustments to Budget Years Since FY 2002 PBR									235													
(U) Current Budget Submit/FY 2003 PBR					18,164		9,342		13,267		TBD											
(U) <u>Significant Program Changes:</u>																						
(U) D. Other Program Funding Summary (\$ in Thousands)																						
					<u>FY 2001</u>		<u>FY 2002</u>		<u>FY 2003</u>		<u>FY 2004</u>		<u>FY 2005</u>		<u>FY 2006</u>		<u>FY 2007</u>		<u>Cost to</u>		<u>Total Cost</u>	
					<u>Actual</u>		<u>Estimate</u>		<u>Estimate</u>		<u>Estimate</u>		<u>Estimate</u>		<u>Estimate</u>		<u>Estimate</u>		<u>Complete</u>			
(U) Other APPN																						
(U) E. Acquisition Strategy																						
Demonstration and Validation, multiple contracts, Fixed Price Incentive Fee (FPIF), Firm Fixed Priced contracts (FFP); no Non-Developmental Items (NDI)																						
(U) F. Schedule Profile																						
					<u>FY 2001</u>		<u>FY 2002</u>		<u>FY 2003</u>		<u>FY 2004</u>		<u>FY 2005</u>		<u>FY 2006</u>		<u>FY 2007</u>					
					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					
(U) Architecture and Requirements Definition																						
(U) SRGPS test bed delivery (risk reduction prototype)																						
(U) LDGPS demonstration system flight test																						
(U) SRGPS demonstration system flight test																						

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 2002
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BUDGET ACTIVITY 04 - Demonstration and Validation	PE NUMBER AND TITLE 0603860F Joint Precision Approach and Landing Systems - Dem/Val	PROJECT 4652
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(U) **F. Schedule Profile Continued**

	<u>FY 2001</u>				<u>FY 2002</u>				<u>FY 2003</u>			
	1	2	3	4	1	2	3	4	1	2	3	4
(U) ALC development studies					X							
(U) Ground station miniaturization						X						
(U) LDGPS test bed upgrade					X							
(U) LDGPS architecture refinement						X						
(U) Modeling and simulation activities									X			

X Denotes a new activity * Denotes a completed activity

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2002			
BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT		
04 - Demonstration and Validation				0603860F Joint Precision Approach and Landing Systems - Dem/Val				4652		
(U) A. Project Cost Breakdown (\$ in Thousands)										
						<u>FY 2001</u>		<u>FY 2002</u>		<u>FY 2003</u>
(U)	Prototype Developments - LDGPS test bed and SRGPS					16,368		3,234		3,286
(U)	Prototype studies and analyses, ant-jam studies and analyses, LDGPS architecture definitions					322		3,698		5,051
(U)	ALC studies and deployable ground station miniaturizations							1,183		
(U)	Modeling, simulation and flight test of LDGPS test bed upgrades									3,496
(U)	Systems Engineering/Technical Support for architecture refinement					603		616		634
(U)	Responsible Test Organization activities to support prototype lab, van and flight testing					600		356		475
(U)	Program Management Support					228		200		250
(U)	Travel					43		55		75
(U)	Total					18,164		9,342		13,267
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)										
(U) Performing Organizations:										
<u>Contractor or</u>	<u>Contract</u>									
<u>Government</u>	<u>Method/Type</u>	<u>Award or</u>	<u>Performing</u>	<u>Project</u>						
<u>Performing</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Activity</u>	<u>Office</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Activity</u>	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>	<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Complete</u>	<u>Program</u>
<u>Product Development Organizations</u>										
Raytheon Systems (LDGPS)	CPAF	May 99	N/A	N/A	7,395	5,612	840	1,495	Continuing	TBD
Raytheon Systems (SRGPS)	CPFF	June 99	N/A	N/A	3,340	0	0		0	3,340
ARINC Inc.	FFP	Jan 99	N/A	N/A	1,757	0	0		0	1,757
Horizons Technology Inc	IDIQ	Feb 99	N/A	N/A	4,346	857	1,073	1,496	Continuing	TBD
Rockwell Collins Inc.	FFP	Apr 99	N/A	N/A	1,100	700	0		0	1,800
Navy PMA21381	Reimbursable	Nov 99	N/A	N/A	9,087	7,249	0		0	16,336
MITRE Corporation	CPAF	Oct 99	N/A	N/A	1,197	752	616	729	Continuing	TBD
PRC Corporation	FFP	Jan 99	N/A	N/A	451	0	0		0	451
Pacer Infotech Inc.	FPPF	May 99	N/A	N/A	512	0	0		0	512
Project 4652					Page 5 of 7 Pages			Exhibit R-3 (PE 0603860F)		

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE
BUDGET ACTIVITY										PROJECT
04 - Demonstration and Validation										4652
PE NUMBER AND TITLE										
0603860F Joint Precision Approach and Landing Systems - Dem/Val										
(U) Performing Organizations Continued:										
<u>Product Development Organizations</u>										
MCR	IDIQ	Apr 99	N/A	N/A	347	107	112	119	Continuing	TBD
Sierra Nevada Corp	CPFF	Mar 99	N/A	N/A	276	700	0	0	0	976
Lockheed Martin Services	FFP	Mar 99	N/A	N/A	243	0	0	0	0	243
Litton Corp	FFP	May 01	N/A	N/A	0	180	0	0	0	180
Various	Various	Various	N/A	N/A	3,696	1,136	289	808	0	5,929
TBD Contracts										
Modeling/Simulation	FFP	1Qtr FY02	N/A	N/A	0	0	1,511	3,496	Continuing	TBD
LDGPS Test Bed Upgrade	FPIF	1Qtr FY02	N/A	N/A	0	0	3,107	3,286	Continuing	TBD
Ground Station	FFP	1Qtr FY02	N/A	N/A	0	0	1,183	1,038	Continuing	TBD
Miniaturization										
<u>Support and Management Organizations</u>										
MITRE Corp	FFP	Various	N/A	N/A	423	228	200	250	Continuing	TBD
Various	FFP	Various	N/A	N/A	259	43	55	75	Continuing	TBD
<u>Test and Evaluation Organizations</u>										
Navy - NAWCAD	Reimbursable	Nov 99	N/A	N/A	591	450	0	0	0	1,041
48TG/XPRF	Reimbursable	May 01	N/A	N/A	0	150	356	475	0	981
(U) Government Furnished Property:										
<u>Contract</u>										
<u>Item</u>	<u>Method/Type</u>	<u>Award or</u>	<u>Delivery</u>		<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Description</u>	<u>Vehicle</u>	<u>Obligation</u>	<u>Date</u>	<u>Date</u>	<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Complete</u>	<u>Program</u>
<u>Product Development Property</u>										
N/A										
<u>Support and Management Property</u>										
N/A										
Project 4652				Page 6 of 7 Pages				Exhibit R-3 (PE 0603860F)		

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE				
04 - Demonstration and Validation		February 2002				
BUDGET ACTIVITY		PROJECT				
04 - Demonstration and Validation		4652				
PE NUMBER AND TITLE		PROJECT				
0603860F Joint Precision Approach and Landing Systems - Dem/Val		4652				
(U) Government Furnished Property Continued:						
<u>Test and Evaluation Property</u>						
N/A						
	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Subtotals</u>	<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Complete</u>	<u>Program</u>
Subtotal Product Development	33,747	17,293	8,731	12,467	TBD	TBD
Subtotal Support and Management	682	271	255	325	TBD	TBD
Subtotal Test and Evaluation	591	600	356	475	0	2,022
Total Project	35,020	18,164	9,342	13,267	TBD	TBD
Project 4652						
Page 7 of 7 Pages						
Exhibit R-3 (PE 0603860F)						

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 2002
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BUDGET ACTIVITY 04 - Demonstration and Validation	PE NUMBER AND TITLE 0604327F Hardened Target Munitions	PROJECT 4641
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COST (\$ in Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
4641 Hard and Deeply Buried Target Defeat System (HDBTDS)	0	0	7,482	12,922	0	0	0	0	20,404
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0

In FY2003, Project 4641, Hard and Deeply Buried Target Defeat System (NDBTDS), includes new start efforts.

(U) A. Mission Description

The Hard and Deeply Buried Target Defeat System (HDBTDS) program is an effort designed to hold at risk those highest priority assets essential to the enemy's war fighting ability, which are heavily defended and protectively hardened. Hardening techniques include construction of facilities, many of which are deep underground with multiple layers of reinforced concrete, rock rubble, and/or earth overburden. Other hardened targets include operations within caves, tunnels, and mountains built using rapidly improving construction equipment exported by allies and adversaries on a large scale. (Examples include enemy command and control facilities, air defense facilities, facilities for the production, storage, and deployment of weapons including weapons of mass destruction, surface to surface missile launch sites, aircraft storage sites, artillery sites.) Potential solutions include (but are not limited to) Special Forces, conventional short or long range ballistic missiles (land or sea launched), cruise missiles, direct attack munitions, and standoff weapons.

An Analysis of Alternatives (AOA) was conducted to evaluate the weapon concepts to determine the most promising concepts to move forward into a follow-on program. The potential weapon concepts were evaluated in an air campaign analysis. The results of the AOA were presented to the Joint Requirements Oversight Council (JROC) in 4th Quarter FY 1999. The AOA has been documented into a report for future reference. The primary legacy hard target penetrator weapon, GBU-28, was tested in rock to validate computer models used in the AOA analysis and to provide test data for future use when considering weapon design alternatives for increased penetration capability. The results were presented in 1st Quarter FY 2001.

In FY 2003, the GBU-28 will begin an upgrade program to enhance the effectiveness of the BLU-113 penetrator warhead against the hard and deeply buried target set. The BLU-113 warhead will be redesigned to increase weapon penetration, improve survivability; an explosive upgrade will increase weapon lethality; a material upgrade will enhance warhead survivability; a fuze redesign will enhance fuze survivability. These performance improvements would decrease the number of weapons required to hold this target set at risk.

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BUDGET ACTIVITY 04 - Demonstration and Validation	PE NUMBER AND TITLE 0604327F Hardened Target Munitions		PROJECT 4641																																													
<p>(U) <u>A. Mission Description Continued</u></p> <p>(U) <u>FY 2001 (\$ in Thousands)</u></p> <p>(U) \$0 No Activity</p> <p>(U) \$0 Total</p> <p>(U) <u>FY 2002 (\$ in Thousands)</u></p> <p>(U) \$0 No Activity</p> <p>(U) \$0 Total</p> <p>(U) <u>FY 2003 (\$ in Thousands)</u></p> <p>(U) \$5,100 Design warhead, integrate explosive and upgrade case material.</p> <p>(U) \$500 Plan and prepare for testing redesigned warhead</p> <p>(U) \$582 Air Force Research Laboratory provide technical engineering design support and analysis.</p> <p>(U) \$700 Perform field agency activities, including project office and computer support to manage the Hardened Target Munitions program.</p> <p>(U) \$600 System Engineering and Technical Analysis (SETA) support including independent analysis and evaluation of prototype warhead designs.</p> <p>(U) \$7,482 Total</p> <p>(U) <u>B. Budget Activity Justification</u></p> <p>This program is in budget activity 4 - Demonstration and Validation, because the program would examine a Hard Target Munitions capability to precisely hit and destroy hard and deeply buried targets not currently held at risk.</p> <p>(U) <u>C. Program Change Summary (\$ in Thousands)</u></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:60%;"></th> <th style="text-align: center;"><u>FY 2001</u></th> <th style="text-align: center;"><u>FY 2002</u></th> <th style="text-align: center;"><u>FY 2003</u></th> <th style="text-align: center;"><u>Total Cost</u></th> </tr> </thead> <tbody> <tr> <td>(U) Previous President's Budget</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td></td> <td style="text-align: center;">0</td> </tr> <tr> <td>(U) Appropriated Value</td> <td></td> <td></td> <td></td> <td style="text-align: center;">0</td> </tr> <tr> <td>(U) Adjustments to Appropriated Value</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> a. Congressional/General Reductions</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> b. Small Business Innovative Research</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> c. Omnibus or Other Above Threshold Reprogram</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> d. Below Threshold Reprogram</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> e. Rescissions</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>					<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Total Cost</u>	(U) Previous President's Budget	0	0		0	(U) Appropriated Value				0	(U) Adjustments to Appropriated Value					a. Congressional/General Reductions					b. Small Business Innovative Research					c. Omnibus or Other Above Threshold Reprogram					d. Below Threshold Reprogram					e. Rescissions				
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Project 4641	Page 2 of 5 Pages	Exhibit R-2 (PE 0604327F)																																														

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 2002											
BUDGET ACTIVITY		PE NUMBER AND TITLE		PROJECT									
04 - Demonstration and Validation		0604327F Hardened Target Munitions		4641									
(U) C. Program Change Summary (\$ in Thousands) Continued													
		<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Total Cost</u>								
(U)	Adjustments to Budget Years Since FY 2002 PBR	0	0	7,482	20,404								
(U)	Current Budget Submit/FY 2003 PBR	0	0	7,482	20,404								
(U)	<u>Significant Program Changes:</u> Not Applicable												
(U) D. Other Program Funding Summary (\$ in Thousands)													
		<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>			
		<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>				
(U)	Not Applicable												
(U) E. Acquisition Strategy													
This will be a competitive procurement for warhead design and integration of explosive and material upgrade. GFE will be provided such as warhead explosive fill and steel case material.													
(U) F. Schedule Profile													
		<u>FY 2001</u>			<u>FY 2002</u>			<u>FY 2003</u>					
		1	2	3	4	1	2	3	4	1	2	3	4
(U)	Perform Warhead Design										X		
(U)	Conduct Subscale Testing											X	
(U)	Manufacture Prototype Warheads												X
	X - Planned event												

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2002			
BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT		
04 - Demonstration and Validation				0604327F Hardened Target Munitions				4641		
(U) Government Furnished Property:										
<u>Item</u>	<u>Contract</u>	<u>Method/Type</u>	<u>Award or</u>		<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Description</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Delivery</u>		<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Complete</u>	<u>Program</u>
	<u>Vehicle</u>	<u>Date</u>	<u>Date</u>							
<u>Product Development Property</u>										
N/A										
<u>Support and Management Property</u>										
N/A										
<u>Test and Evaluation Property</u>										
N/A										
					<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
					<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Complete</u>	<u>Program</u>
<u>Subtotals</u>										
Subtotal Product Development					0	0	0	5,700	5,100	10,800
Subtotal Support and Management					0	0	0	1,282	1,122	2,404
Subtotal Test and Evaluation					0	0	0	500	6,700	7,200
Total Project					0	0	0	7,482	12,922	20,404

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 2002
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BUDGET ACTIVITY 04 - Demonstration and Validation	PE NUMBER AND TITLE 0604731F Unmanned Combat Air Vehicle (UCAV)	PROJECT 5058
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COST (\$ in Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
5058 Unmanned Combat Air Vehicle (UCAV)	0	0	40,000	180,000	400,000	205,000	55,546	0	0
Quantity of RDT&E Articles	0	0	1	2	0	0	0	0	0

Note: UCAV is also funded under multiple AF and DARPA S&T PEs from FY99 through FY04.

(U) A. Mission Description

The Unmanned Combat Air Vehicle (UCAV) program will demonstrate and develop an unmanned, highly survivable and interoperable weapons system capable of effectively and affordably performing lethal and non-lethal Suppression of Enemy Air Defenses (SEAD)/Strike missions. Potential future missions for UCAV include Electronic Attack, Directed Energy, and Tactical Reconnaissance. This program will demonstrate the technical feasibility, military utility, and operational value of a UCAV system and will develop the initial and follow-on operational capabilities using an effects-based spiral development approach.

The UCAV effort consists of an ongoing System Demonstration Program (SDP) and the follow-on effects-based spiral development program. The joint DARPA/AF SDP is currently in the second of three phases. Phase II is an Advanced Technology Demonstration (ATD) that started in FY99 and is funded by multiple AF and DARPA S&T PEs. Phase III is a Risk Reduction and Operational Evaluation (RR&OE) effort beginning in FY03, which further demonstrates and matures UCAV technology, military utility, and operational value, allowing for a smooth transition from the S&T program to subsequent effects-based spiral development. The primary Phase III activity in FY03 is to take the system-level preliminary design of the next iteration X-45B demonstrator begun in Phase II and proceed into detailed design and fabrication.

- (U) FY 2001 (\$ in Thousands)
- (U) \$0 No Activity
- (U) \$0 Total
- (U) FY 2002 (\$ in Thousands)
- (U) \$0 No Activity
- (U) \$0 Total

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)							DATE February 2002		
BUDGET ACTIVITY 04 - Demonstration and Validation				PE NUMBER AND TITLE 0604731F Unmanned Combat Air Vehicle (UCAV)			PROJECT 5058		
(U) D. Other Program Funding Summary (\$ in Thousands)									
	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) AF S&T (PEXXXXXX)*	24,800								
(U) AF S&T (PE0603333F)		20,952	18,000						
(U) DARPA (PE0603765E)	14,000	2,000	3,000						
(U) DARPA (PE0602702E)	49,700								
(U) DARPA (PE0603285E)		60,000	60,000	30,000					
(U) Aircraft Procurement (PE0207255F)					30,000	275,000	260,000		
* Prior to FY02, multiple AF S&T PEs were used to fund the UCAV SDP. All AF S&T funding was consolidated into PE 0603333F starting in FY02.									
(U) E. Acquisition Strategy									
Near-term acquisition strategy is to continue the UCAV System Demonstration Program effort under the current DARPA/Air Force Other Transactions Authority (OTA) contract with Boeing Phantom Works, St. Louis, MO. DARPA will exercise the Phase III option in the current OTA to initiate Phase III activity. Long-term acquisition strategy for the follow-on effects-based acquisition program is TBD.									
(U) F. Schedule Profile									
				<u>FY 2001</u>		<u>FY 2002</u>		<u>FY 2003</u>	
				1	2	3	4	1	2
									3
									4
(U) Begin System B Long Lead Fabrication									X
(U) System B Final Design Review									
(U) Block 4 Software Requirements Review (1QFY04)									
(U) System B First Flight (4QFY04)									X

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)								DATE February 2002		
BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT		
04 - Demonstration and Validation				0604731F Unmanned Combat Air Vehicle (UCAV)				5058		
(U) A. Project Cost Breakdown (\$ in Thousands)										
					<u>FY 2001</u>		<u>FY 2002</u>			<u>FY 2003</u>
(U)	UCAV System Demonstration Program									37,600
(U)	Other Government Cost									2,400
(U)	Total									40,000
Note: UCAV is also funded under multiple AF and DARPA S&T PEs from FY99 through FY04.										
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)										
(U) Performing Organizations:										
<u>Contractor or</u>	<u>Contract</u>									
<u>Government</u>	<u>Method/Type</u>	<u>Award or</u>	<u>Performing</u>	<u>Project</u>						
<u>Performing</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Activity</u>	<u>Office</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Activity</u>	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>	<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Complete</u>	<u>Program</u>
<u>Product Development Organizations</u>										
Boeing Phantom Works, St. Louis, MO.	Section 845, Other Transactions Authority (OTA) Agreement	Mar 99	TBD	TBD				37,600	Continuing	TBD
<u>Support and Management Organizations</u>										
Various								2,400	Continuing	TBD
<u>Test and Evaluation Organizations</u>										
					<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
					<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Complete</u>	<u>Program</u>
<u>Subtotals</u>										
Subtotal Product Development								37,600	TBD	TBD
Subtotal Support and Management								2,400	TBD	TBD
Subtotal Test and Evaluation										
Total Project								40,000	TBD	TBD
Project 5058				Page 4 of 4 Pages				Exhibit R-3 (PE 0604731F)		

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 2002		
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0207249F Precision Attack Systems				PROJECT 2693		
COST (\$ in Thousands)		FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
2693	Lantirn	3,687	5,925	0	0	0	0	0	0	9,671
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0
<p>(U) <u>A. Mission Description</u> The primary mission of the Low Altitude Navigation and Targeting Infrared for Night (LANTIRN) targeting and navigation pods is to execute surgical strike operations under various conditions. The targeting pod is the core of the Combat Air Forces (CAF) precision guided munitions (PGM) capability, the heart of F-15E and F-16Blk40 operations. A suite of support equipment provides maintenance analysis for organic pod repair. The mission capable rate of the pods is related to the availability of the support equipment. This equipment utilizes early 1980's technology and is in serious decline. Operators experience excessive down-time due to obsolete parts and ever decreasing repair capability. The System Program Office has developed a plan to upgrade the support equipment, replacing obsolete parts with commercial off-the-shelf components, increasing throughput by 70 percent, and facilitating AEF-tailored, small footprint, rapid deployment capability.</p> <p>(U) <u>FY 2001 (\$ in Thousands)</u> (U) \$3,687 Required development and engineering for upgrade of LANTIRN support equipment, and development of associated technical data and drawings. (U) \$3,687 Total</p> <p>(U) <u>FY 2002 (\$ in Thousands)</u> (U) \$5,925 Required development and engineering for upgrade of LANTIRN support equipment, and development of associated technical data and drawings. (U) \$5,925 Total</p> <p>(U) <u>FY 2003 (\$ in Thousands)</u> (U) \$0 No Activity (U) \$0 Total</p>										
Project 2693				Page 1 of 4 Pages				Exhibit R-2 (PE 0207249F)		

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)							DATE February 2002																																																							
BUDGET ACTIVITY	PE NUMBER AND TITLE					PROJECT																																																								
05 - Engineering and Manufacturing Development	0207249F Precision Attack Systems					2693																																																								
<p>(U) <u>B. Budget Activity Justification</u> The LANTIRN SE upgrade program is in budget activity 5 - Engineering and Manufacturing Development because it is in engineering and manufacturing development and has not received full-rate production approval.</p>																																																														
<p>(U) <u>C. Program Change Summary (\$ in Thousands)</u></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 55%;"></th> <th style="text-align: right;"><u>FY 2001</u></th> <th style="text-align: right;"><u>FY 2002</u></th> <th style="text-align: right;"><u>FY 2003</u></th> <th style="text-align: right;"><u>Total Cost</u></th> </tr> </thead> <tbody> <tr> <td>(U) Previous President's Budget</td> <td style="text-align: right;">3,928</td> <td style="text-align: right;">5,925</td> <td style="text-align: right;">0</td> <td style="text-align: right;">9,671</td> </tr> <tr> <td>(U) Appropriated Value</td> <td style="text-align: right;">3,965</td> <td style="text-align: right;">5,925</td> <td></td> <td style="text-align: right;">9,671</td> </tr> <tr> <td>(U) Adjustments to Appropriated Value</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> a. Congressional/General Reductions</td> <td style="text-align: right;">-28</td> <td style="text-align: right;">0</td> <td></td> <td></td> </tr> <tr> <td> b. Small Business Innovative Research</td> <td style="text-align: right;">-140</td> <td></td> <td></td> <td></td> </tr> <tr> <td> c. Omnibus or Other Above Threshold Reprogram</td> <td style="text-align: right;">-76</td> <td></td> <td></td> <td></td> </tr> <tr> <td> d. Below Threshold Reprogram</td> <td style="text-align: right;">-25</td> <td></td> <td></td> <td></td> </tr> <tr> <td> e. Rescissions</td> <td style="text-align: right;">-9</td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Budget Years Since FY 2002 PBR</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) Current Budget Submit/FY 2003 PBR</td> <td style="text-align: right;">3,687</td> <td style="text-align: right;">5,925</td> <td style="text-align: right;">0</td> <td style="text-align: right;">9,671</td> </tr> </tbody> </table> <p>(U) <u>Significant Program Changes:</u></p>									<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Total Cost</u>	(U) Previous President's Budget	3,928	5,925	0	9,671	(U) Appropriated Value	3,965	5,925		9,671	(U) Adjustments to Appropriated Value					a. Congressional/General Reductions	-28	0			b. Small Business Innovative Research	-140				c. Omnibus or Other Above Threshold Reprogram	-76				d. Below Threshold Reprogram	-25				e. Rescissions	-9				(U) Adjustments to Budget Years Since FY 2002 PBR					(U) Current Budget Submit/FY 2003 PBR	3,687	5,925	0	9,671
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	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>																																																					
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>																																																						
(U) Other APPN (3010), Line Item 77; Precision Attack Systems	34,602	36,063	37,056	37,197	38,008	38,850	39,713	0	261,489																																																					
<p>(U) <u>E. Acquisition Strategy</u> The majority of engineering and development of the upgrade to the LANTIRN Intermediate Automatic Test Equipment (LIATE) and Electro-Optical Test Set (EOTS) will be completed under the Commercial Operations and Support Savings Initiative (COSSI), a DoD-funded program. We will award a contract for any additional engineering development for the LIATE and EOTS and/or for the remaining three test stations in the LANTIRN support equipment suite. Development of the associated technical data and drawings for the upgraded equipment will also be required.</p>																																																														
Project 2693			Page 2 of 4 Pages			Exhibit R-2 (PE 0207249F)																																																								

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2002			
BUDGET ACTIVITY					PE NUMBER AND TITLE			PROJECT		
05 - Engineering and Manufacturing Development					0207249F Precision Attack Systems			2693		
(U) A. Project Cost Breakdown (\$ in Thousands)										
						<u>FY 2001</u>		<u>FY 2002</u>		<u>FY 2003</u>
(U)	Develop LANTIRN SE upgrade and tech data					3,687		5,925		0
(U)	Total					3,687		5,925		0
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)										
(U) Performing Organizations:										
	<u>Contractor or</u>	<u>Contract</u>								
	<u>Government</u>	<u>Method/Type</u>	<u>Award or</u>	<u>Performing</u>	<u>Project</u>					
	<u>Performing</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Activity</u>	<u>Office</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>
	<u>Activity</u>	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>	<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Complete</u>
	Lockhee Martin Space and Missiles						3,687	5,984	0	0
	<u>Product Development Organizations</u>									
	<u>Support and Management Organizations</u>									
	<u>Test and Evaluation Organizations</u>									
	<u>Subtotals</u>					<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>
						<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Complete</u>
							3,687	5,984	0	0
	Subtotal Product Development									
	Subtotal Support and Management									
	Subtotal Test and Evaluation									
	Total Project						3,687	5,984	0	0
										9,671

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 2002	
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0207434F Link 16 Support and Sustainment					
COST (\$ in Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	0	0	44,146	44,186	186,571	265,815	257,912	Continuing	TBD
5049 JINTACCS	0	0	5,726	5,803	19,913	18,191	33,266	Continuing	TBD
5050 TCL System Integration	0	0	23,469	23,471	151,766	232,726	209,765	Continuing	TBD
5051 Family of Interoperable Operational Pictures (FIOP)	0	0	14,951	14,912	14,892	14,898	14,881	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0

In FY 2003:

- a. #655049, JINTACCS efforts will transfer from PE 0604779F, Tactical Data Link Interoperability, #652189, JINTACCS;
- b. #655050, TDL System Integration efforts will transfer from PE 0604754F, Tactical Data Link Integration, #654749, Link 16 System Integration; and
- c. #655051, Family of Interoperable Operational Pictures (FIOP) efforts will transfer from PE 0604754F, Tactical Data Link Integration, #654992, Family of Interoperable Operational Pictures (FIOP).

This will be done in order to consolidate tactical data link/Link 16 funding and manage tactical data links as an enterprise.

(U) **A. Mission Description**
 Tactical Data Links (TDL) are used in a combat environment to exchange information such as messages, data, radar tracks, target information, platform status, imagery, and command assignments. TDLs provide interoperability, local and global connectivity, and situational awareness to the user when operating under rapidly changing operational conditions. TDLs are used by the Air Force, Army, Navy, and Marine Corps theater Command and Control (C2) elements, weapons platforms, and sensors. TDLs include but are not limited to: Link-16, Link-11, Situational Awareness Data Link (SADL), Variable Message Format (VMF), Enhanced Position Location Reporting System (EPLRS), and Common Data link (CDL).

Utilization of Link 16 in a joint environment requires the integration of terminals (e.g., Joint Tactical Information Distribution System (JTIDS) or Multifunction

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 2002
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BUDGET ACTIVITY 05 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0207434F Link 16 Support and Sustainment
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(U) **A. Mission Description Continued**
 Information Distribution System (MIDS)) into these host platforms, and interoperability of Link 16 nets across all deployed joint and allied platforms. The Tactical Data Links (TDL) System Program Office (SPO) performs several cross-platform activities to help ensure proper integration of Link 16 capabilities and interoperability of Link 16 nets. In addition, the SPO is supporting the integration of Link 16 into the Iceland Air Defense System (IADS) and has management responsibility for the Air Force's Air Defense System Integration (ADSI) systems. The Single Integrated Air Picture (SIAP) efforts will lead to the joint development of improvements to TDLs to better support the warfighter by ensuring that the air picture is composed of common, continual, unambiguous, tracks of all airborne objects. The Family of Interoperable Operational Pictures (FIOP) efforts ensure that the total air, sea, and land situational awareness picture is unified and provided to all forces operating within the TDL network.

The Joint Interoperability of Tactical Command and Control Systems (JINTACCS) Program ensures platform/system interoperability through the development and management of the joint/combined architecture, tactical information exchange requirements (IERs), interface definitions and protocols, platform/system implementations, employment concepts, and operating procedures. This includes the coordination of all TDL and USMTF message standards configuration management, platform/system interoperability assessments and interoperability certification testing.

(U) **B. Budget Activity Justification**
 This program is in budget activity 5 (Engineering Manufacturing and Development) because it supports development, integration solutions, fielding, operational support activities, and support of special projects.

(U) **C. Program Change Summary (\$ in Thousands)**

	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Total Cost</u>
(U) Previous President's Budget			29,715	TBD
(U) Appropriated Value				
(U) Adjustments to Appropriated Value				
a. Congressional/General Reductions				
b. Small Business Innovative Research				
c. Omnibus or Other Above Threshold Reprogram				
d. Below Threshold Reprogram				
e. Rescissions				
(U) Adjustments to Budget Years Since FY 2002 PBR			14,431	
(U) Current Budget Submit/FY 2003 PBR			44,146	TBD

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BUDGET ACTIVITY

05 - Engineering and Manufacturing Development

PE NUMBER AND TITLE

0207434F Link 16 Support and Sustainment

(U) C. Program Change Summary (\$ in Thousands) Continued

(U) Significant Program Changes:

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)								DATE February 2002	
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0207434F Link 16 Support and Sustainment				PROJECT 5049	
COST (\$ in Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
5049 JINTACCS	0	0	5,726	5,803	19,913	18,191	33,266	Continuing	TBD
<p>In FY 2003, #655049, JINTACCS efforts transferred from PE 0604779F, Tactical Data Link Interoperability, #652189, JINTACCS.</p> <p>(U) <u>A. Mission Description</u> The Joint Interoperability of Tactical Command and Control Systems (JINTACCS) Program is a Joint Staff directed program that provides the sole Air Force (AF) activity responsible for ensuring the interoperability of AF Tactical Data Links (TDLs) [including, but not limited to Tactical Digital Information Links (TADILs) and Variable Message Formats (VMF)] and United States Message Text Format (USMTF) systems with the associated Joint and allied/coalition systems. The requirements for the program are delineated in DoDD 4630.5, DoDD 4630.8, CJCSI 6212.01B, and AFI 33-108. The program ensures platform/system interoperability through the development and management of the joint/combined architecture, tactical information exchange requirements (IERS), interface definitions and protocols, platform/system implementations, employment concepts, and operating procedures. This includes the coordination of all TDL and USMTF message standards configuration management, platform/system interoperability assessments and interoperability certification testing. Air Force platforms/systems participating in, and affected by, this program include: Airborne Warning and Control System (AWACS); Airborne Battlefield Command and Control Center (ABCCC); Modular Control Element (MCE); Air Operations Center (AOC); Joint Surveillance Target Attack Radar System (JSTARS); F-15 A/B/C/D/E; F-16 B30/40/50; F-22; A/OA-10; Joint Strike Fighter (JSF); Airborne Laser (ABL); B-1; B-2; B-52; F-117; RC-135; Regional/Sector Air Operations Center (RAOC/SAOC), Command & Control Information Processing System (C2IPS); Space Based Infrared System (SBIRS); Iceland Air Defense System (IADS); Air Support Operations Center (ASOC); and Tactical Air Control Parties (TACPs), Theater Battle Management Corps System (TBMCS), Contingency Automated Theater Automated Planning System (CTAPS), Combat Intelligence System (CIS), Air Defense System Integrator (ADSI), Distributed Common Ground System (DCGS), North American Aerospace Defense Command (NORAD)/United States Space Command (USSPACECOM) Warfighting Support System (N/UWSS), Region/Sector Air Operations Center (R/SAOC) AWACS Digital Information Link, and Global Command and Control System (GCCS)-Air Force (GCSS-AF). The Air Force JINTACCS program supports the Assistant Secretary of Defense (ASD) directive on harmonization of US and NATO messages (e.g., ATO and ACO).</p> <p>(U) <u>FY 2001 (\$ in Thousands)</u> (U) \$0 No Activity (U) \$0 Total</p>									
Project 5049			Page 4 of 18 Pages				Exhibit R-2A (PE 0207434F)		

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)		DATE February 2002																																																
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0207434F Link 16 Support and Sustainment	PROJECT 5049																																																
<p>(U) <u>A. Mission Description Continued</u></p> <p>(U) <u>FY 2002 (\$ in Thousands)</u></p> <p>(U) \$0 No Activity</p> <p>(U) \$0 Total</p> <p>(U) <u>FY 2003 (\$ in Thousands)</u></p> <p>(U) \$660 Continue Interoperability Certification Testing. Specific platforms will be determined based on Link 16 message implementation, software upgrade, and system modification</p> <p>(U) \$1,552 Continue US Message Text Formats Management and Updates - Support Joint, Allied/Coalition meetings and working groups - Support technology maturation for joint standards and DoD policy</p> <p>(U) \$3,514 Continue Tactical Data Link Management and Architecture Development. - Support multi TADIL and VMF meetings and working groups - Consultations regarding implementation and interoperability with the F-16, B-52, B-1, B-2, F-117 - Consultations regarding software updates and interoperability with the F-15C, E-3, E-8, ABCCC, CRC/CRE, TULIP</p> <p>(U) \$5,726 Total</p> <p>(U) <u>B. Project Change Summary</u> In FY 2003, #655049, JINTACCS efforts transferred from PE 0604779F, Tactical Data Link Interoperability, #652189, JINTACCS</p> <p>(U) <u>C. Other Program Funding Summary (\$ in Thousands)</u></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:15%;"></th> <th style="width:10%; text-align: center;"><u>FY 2001</u></th> <th style="width:10%; text-align: center;"><u>FY 2002</u></th> <th style="width:10%; text-align: center;"><u>FY 2003</u></th> <th style="width:10%; text-align: center;"><u>FY 2004</u></th> <th style="width:10%; text-align: center;"><u>FY 2005</u></th> <th style="width:10%; text-align: center;"><u>FY 2006</u></th> <th style="width:10%; text-align: center;"><u>FY 2007</u></th> <th style="width:10%; text-align: center;"><u>Cost to</u></th> <th style="width:10%; text-align: center;"><u>Total Cost</u></th> </tr> <tr> <td></td> <td style="text-align: center;"><u>Actual</u></td> <td style="text-align: center;"><u>Estimate</u></td> <td style="text-align: center;"><u>Complete</u></td> <td></td> </tr> </thead> <tbody> <tr> <td>(U) AF RDT&E</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) Other APPN</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <p>(U) <u>D. Acquisition Strategy</u> As the Air Force lead agent for a jointly directed program, JINTACCS provides level of effort technical support for increasing interoperability of AF programs through message text and data link standards implementation.</p> <p>(U) <u>E. Schedule Profile</u></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:40%;"></th> <th style="width:20%; text-align: center;"><u>FY 2001</u></th> <th style="width:20%; text-align: center;"><u>FY 2002</u></th> <th style="width:20%; text-align: center;"><u>FY 2003</u></th> </tr> </thead> <tbody> <tr> <td>Project 5049</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>				<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>		<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>		(U) AF RDT&E										(U) Other APPN											<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	Project 5049			
	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>																																									
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>																																										
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(U) Other APPN																																																		
	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>																																															
Project 5049																																																		

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)										DATE February 2002									
BUDGET ACTIVITY					PE NUMBER AND TITLE					PROJECT									
05 - Engineering and Manufacturing Development					0207434F Link 16 Support and Sustainment					5049									
(U) <u>E. Schedule Profile Continued</u>																			
					<u>FY 2001</u>						<u>FY 2002</u>						<u>FY 2003</u>		
				1	2	3	4	1	2	3	4	1	2	3	4				
(U)	F-16 - OFP M-3 baseline implementation and interoperability			X															
(U)	E-8 - Complete ASU Spiral 1 Implementation/Interoperability			X															
(U)	AOC - Complete baseline Implementation/Interoperability			X															
(U)	F-15C - Interoperability consultation for Software upgrades.			X															
(U)	F-16 - Interoperability consultation for Software upgrades.			X															
(U)	E-3 - Interoperability consultation for Software upgrades.			X															
(U)	E-8 - Interoperability consultation for Software upgrades.			X															
(U)	ABCCC - Interoperability consultation for Software upgrades.			X															
(U)	CRC/CRE - Interoperability consultation for Software upgrades.			X															
(U)	AOC - Interoperability consultation for Software upgrades.			X															
(U)	F-15E - Interoperability consultation for Software upgrades.			X															
(U)	ABL - Interoperability consultation for Software upgrades.			X															
(U)	B-1 - Interoperability consultation for Software upgrades.			X															
(U)	B-2 - Interoperability consultation for Software upgrades.			X															
(U)	B-52 - Interoperability consultation for Software upgrades.																	X	
(U)	F-22 - Interoperability consultation for Software upgrades.																	X	
(U)	F-117 - Interoperability consultation for Software upgrades.																	X	
(U)	Joint StrikeFighter (JSF) - Interoperability consultation for Software																	X	
(U)	R/SAOC - Interoperability consultation for Software upgrades.																	X	
(U)	IADS - Interoperability consultation for Software upgrades.																	X	
(U)	TACP/ASOC - Interoperability consultation for Software upgrades.																	X	
(U)	Interoperability Certification Testing			X															
(U)	(Passed Joint and CAF Interoperability)																	X	
(U)	- MCE P3I																		
(U)	CAF																	X	
(U)	JOINT																	X	

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)											DATE February 2002		
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development						PE NUMBER AND TITLE 0207434F Link 16 Support and Sustainment						PROJECT 5049	
(U) E. Schedule Profile Continued													
		<u>FY 2001</u>				<u>FY 2002</u>				<u>FY 2003</u>			
		1	2	3	4	1	2	3	4	1	2	3	4
(U)	- JSTARS												
(U)	CAF												
(U)	JOINT												
(U)	- E-3 AWACS				X								
(U)	CAF					X							
(U)	JOINT						X						
(U)	- F-15C	X											
(U)	CAF				X								
(U)	JOINT				X								
(U)	- F-15E	X											
(U)	CAF				X								
(U)	JOINT								X				
(U)	- IADS					X							
(U)	CAF									X			
(U)	JOINT					X							
(U)	-ABCCC				X								
(U)	CAF				X								
(U)	JOINT								X				
(U)	- RADIL				X								
(U)	CAF				X								
(U)	JOINT								X				
(U)	- ABL											X	
(U)	CAF									X			
(U)	JOINT											X	
(U)	- F-16					X							
(U)	CAF											X	

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)										DATE February 2002												
BUDGET ACTIVITY					PE NUMBER AND TITLE					PROJECT												
05 - Engineering and Manufacturing Development					0207434F Link 16 Support and Sustainment					5049												
(U) <u>E. Schedule Profile Continued</u>																						
					<u>FY 2001</u>							<u>FY 2002</u>								<u>FY 2003</u>		
					1	2	3	4		1	2	3	4		1	2	3	4				
(U)				JOINT						X												
(U)				- TACP							X											
(U)				CAF								X										
(U)				JOINT										X								
(U)				- ADSI				X														
(U)				CAF				X														
(U)				JOINT											X							
(U)				OPFAC INSTALL/INTEGRATION									X									
(U)				- F-15 E COMPLETE							X											
				* Denotes completed event																		
				X Denotes planned event																		

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	DATE February 2002
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BUDGET ACTIVITY 05 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0207434F Link 16 Support and Sustainment	PROJECT 5050
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COST (\$ in Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
5050 TCL System Integration	0	0	23,469	23,471	151,766	232,726	209,765	Continuing	TBD

In FY03, #655050, TDL System Integration includes efforts transferred from PE 0604754F, Tactical Data Link Integration, #654749, Link 16 System Integration.

(U) A. Mission Description

Tactical Data Links (TDLs) are used in a combat environment to exchange information such as messages, data, radar tracks, target information, platform status, imagery, and command assignments. TDLs provide interoperability, local and global connectivity, and situational awareness to the user when operating under rapidly changing operational conditions. TDLs are used by the Air Force, Army, Navy, and Marine Corps theater Command and Control (C2) elements, weapons platforms, and sensors. TDLs include but are not limited to: Link 16, Link 11, Situational Awareness Data Link (SADL), Variable Message Format (VMF), Enhanced Position Location Reporting System (EPLRS), and Common Data Link (CDL).

The number of Air Force platforms hosting TDLs are expanding from C2 aircraft (E-3, E-8, etc.) into the fighter, bomber, sensor, tanker, airlift and other tactical fleets (F-15, F-16, F-22, RJ, ABCCC, B-1, B-2, B-52, etc.). Utilization of TDLs in a joint environment requires the integration of terminals into these host platforms and interoperability of TDL networks across all deployed joint and allied platforms. Cross-platform activities performed by the Tactical Data Links System Program Office (SPO) include: integration efforts encompassing hardware, software, operational, and logistics development, certification of individual TDL implementations to joint and allied standards, establishment of Service wide net management procedures and operations, system wide enhancements and improvements, and test and sustainment activities. In addition, the SPO is supporting the integration of TDL into the Iceland Air Defense System (IADS) and has management responsibility for the Air Force's Air Defense System Integrator (ADSI). The Single Integrated Air Picture (SIAP) efforts will lead to the joint development of near real-time and real-time data from multiple sensors and TDLs. This will enhance the air picture provided to the warfighter by ensuring a common, continual, and unambiguous, tracks of all airborne objects.

- (U) FY 2001 (\$ in Thousands)
- (U) \$0 No Activity
- (U) \$0 Total

- (U) FY 2002 (\$ in Thousands)
- (U) \$0 No Activity
- (U) \$0 Total

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)							DATE February 2002			
BUDGET ACTIVITY			PE NUMBER AND TITLE				PROJECT			
05 - Engineering and Manufacturing Development			0207434F Link 16 Support and Sustainment				5050			
(U) <u>A. Mission Description Continued</u>										
(U) <u>FY 2003 (\$ in Thousands)</u>										
(U)	\$5,812	CONTINUE LINK 16 INTEGRATION: Efforts associated with hardware and software integration of Link 16 terminals into Air Force platforms. -- (U) On-going engineering integration support to platforms; technical improvements; field support; technical assistance to related tactical data link demonstration programs.								
(U)	\$2,310	CONTINUE LINK 16 EMD SUPPORT: Efforts associated with fielding terminals. -- (U) Support Operations Support Working Group; maintain developmental equipment; test support; fielding/non-recurring training; network support; crypto support; spectrum support; gateway support; data link tool support.								
(U)	\$287	CONTINUED TACTICAL DATA LINK CONNECTIVITY: -- (U) Link 16/other TDLs/Gateways/Interfaces. -- (U) ADSI Management.								
(U)	\$247	CONTINUED SYSTEM TESTING & SUPPORT: Cross-platform test and evaluation and system level testing.								
(U)	\$14,813	CONTINUED SINGLE INTEGRATED AIR PICTURE LINKAGE: -- (U) Continued AF funding of Single Integrated Air Picture (SIAP) effort. -- (U) AF system engineering and infrastructure cost to support SIAP recommendations.								
(U)	\$23,469	Total								
(U) <u>B. Project Change Summary</u>										
Prior to FY03, funding for the SIAP effort is contained in PE 0603879N. Funding for the remaining TDL System Integration efforts is contained in PE 0604754F, Tactical Data Link Integration, #654749, Link 16 System Integration.										
(U) <u>C. Other Program Funding Summary (\$ in Thousands)</u>										
		<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>
		<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U)	AF RDT&E									
(U)	Other APPN			6,291	8,185	8,111	8,389	8,560	Continuing	Continuing
(U)	APPN 10, F-16 Link 16 (PE 27434)			36,563	27,962	22,434	22,784	20,476	Continuing	Continuing
Project 5050		Page 11 of 18 Pages							Exhibit R-2A (PE 0207434F)	

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)											DATE February 2002			
BUDGET ACTIVITY					PE NUMBER AND TITLE						PROJECT			
05 - Engineering and Manufacturing Development					0207434F Link 16 Support and Sustainment						5050			
(U) D. Acquisition Strategy														
The Air Force Tactical Data Links System Program Office (SPO) provides for common development of integration and interoperability across all Air Force platforms and ensures that Link 16 is procured and maintained as a joint, end-to-end, command and control system. Host platforms program and budget for JTIDS or MIDS (Fighter Data Link (FDL) and Low Volume Terminal (LVT) derivatives) production terminals and for installation into operational units.														
(U) E. Schedule Profile														
			<u>FY 2001</u>				<u>FY 2002</u>				<u>FY 2003</u>			
			1	2	3	4	1	2	3	4	1	2	3	4
(U)	Contract Milestones													
(U)	- FDL Full Rate Production Award													
(U)	- MIDS LVT - F-16 Production Award													
(U)	Host Platform Integration Start													
(U)	- F-16 (thru FY04)													
(U)	- Compass Call (thru FY02)													
(U)	- Airborne Laser (ABL) (thru FY03)													
(U)	- B-2 EMD													
(U)	Command and Control Platforms													
(U)	- AWACS Link 16 Qual Complete													
(U)	Complete Baseline Integration													
(U)	- MCE (P3I)													
(U)	- IADS installation start													
	* Denotes completed events													
	X Denotes planned events													

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2002				
BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT			
05 - Engineering and Manufacturing Development				0207434F Link 16 Support and Sustainment				5050			
(U) A. Project Cost Breakdown (\$ in Thousands)											
						<u>FY 2001</u>		<u>FY 2002</u>		<u>FY 2003</u>	
(U)	Link 16 Integration									5,812	
(U)	EMD Activities									2,310	
(U)	Tactical Data Link Connectivity									287	
(U)	System Testing and Support									247	
(U)	Single Integrated Air Picture									14,813	
(U)	Total									23,469	
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)											
(U) Performing Organizations:											
	<u>Contractor or</u>		<u>Contract</u>								
	<u>Government</u>		<u>Method/Type</u>	<u>Award or</u>	<u>Performing</u>	<u>Project</u>					
	<u>Performing</u>		<u>or Funding</u>	<u>Obligation</u>	<u>Activity</u>	<u>Office</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	
	<u>Activity</u>		<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>	<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	
									<u>Budget to</u>	<u>Total</u>	
									<u>Complete</u>	<u>Program</u>	
	<u>Product Development Organizations</u>										
	Data Link Solutions		MIPR		TBD				669	Continuing	TBD
	<u>Support and Management Organizations</u>										
	ESC		Various		Various				432	Continuing	TBD
	Contractor Support								3,006	Continuing	TBD
	MITRE								4,228	Continuing	TBD
	Single Integrated Air Picture		Various		TBD				14,813	Continuing	TBD
	<u>Test and Evaluation Organizations</u>										
	Eglin AFB		PO/616		Various				321	Continuing	TBD

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)					DATE February 2002	
BUDGET ACTIVITY		PE NUMBER AND TITLE			PROJECT	
05 - Engineering and Manufacturing Development		0207434F Link 16 Support and Sustainment			5050	
		<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>
		to FY 2001	FY 2001	FY 2002	FY 2003	Complete
						<u>Total</u>
	<u>Subtotals</u>					<u>Program</u>
	Subtotal Product Development				669	TBD
	Subtotal Support and Management				22,479	TBD
	Subtotal Test and Evaluation				321	TBD
	Total Project				23,469	TBD

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)								DATE February 2002	
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0207434F Link 16 Support and Sustainment				PROJECT 5051	
COST (\$ in Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
5051 Family of Interoperable Operational Pictures (FIOP)	0	0	14,951	14,912	14,892	14,898	14,881	Continuing	TBD
<p>In FY03, #655051, Family of Interoperable Operational Pictures (FIOP) efforts transferred from PE 0604754F, Tactical Data Link Integration, #654992, Family of Interoperable Operational Pictures (FIOP), in order to consolidate the three Link 16 infrastructure PEs into one and manage tactical data links as an enterprise.</p> <p>(U) A. Mission Description This funding and schedule will support development, integration, operational fielding and migration of capability to identified systems of record for the Family of Interoperable Operational Pictures (FIOP) initiative. The objective is to 'provide an all-source picture of the battle space containing actionable, decision-quality, information to the warfighter through a fusion of existing databases' Stove-piped systems will be identified and 'linked' via an improved web-enabled Common Operational Picture (COP).</p> <p>(U) FY 2001 (\$ in Thousands) (U) \$0 No Activity (U) \$0 Total</p> <p>(U) FY 2002 (\$ in Thousands) (U) \$0 No Activity (U) \$0 Total</p> <p>(U) FY 2003 (\$ in Thousands) (U) \$2,200 REQUIREMENTS & ENGINEERING MANAGEMENT: --(U) Provide requirement management (\$300K x 4 services: \$1,200K), AF Exec Agent (\$400K), and DISA Mgt (\$600K). (U) \$7,275 IMPLEMENTATION OF EXECUTION MANAGEMENT CAPABILITY: --(U) Provide integration support, execution management, and visualization capabilities. (U) \$2,889 TACTICAL COE WORKSTATION DEVELOPMENT: --(U) Migrate USMC/USA C2PC to COP infrastructure. Provide integration support, engineering, hardware/software, and travel. (U) \$2,587 COE SUPPORT FOR JOINT VARIABLE MSG FORMAT: --(U) Implement COE processing of JVMF messages among USMC/USN/USA with scalable COP infrastructure in limited bandwidth environments. Provide integration support, engineering, hardware/software, and travel</p>									
Project 5051			Page 15 of 18 Pages				Exhibit R-2A (PE 0207434F)		

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)										DATE February 2002								
BUDGET ACTIVITY					PE NUMBER AND TITLE					PROJECT								
05 - Engineering and Manufacturing Development					0207434F Link 16 Support and Sustainment					5051								
(U) <u>A. Mission Description Continued</u>																		
(U) <u>FY 2003 (\$ in Thousands) Continued</u>																		
(U) \$14,951 Total																		
(U) <u>B. Project Change Summary</u>																		
This funding profile and schedule reflects received program scope. Also, prior to FY03, funding for the FIOP effort is contained in PE 0604754F, Tactical Data Link Integration, #654992, Family of Interoperable Operational Pictures (FIOP).																		
(U) <u>C. Other Program Funding Summary (\$ in Thousands)</u>																		
	<u>FY 2001</u>		<u>FY 2002</u>		<u>FY 2003</u>		<u>FY 2004</u>		<u>FY 2005</u>		<u>FY 2006</u>		<u>FY 2007</u>		<u>Cost to</u>		<u>Total Cost</u>	
	<u>Actual</u>		<u>Estimate</u>		<u>Estimate</u>		<u>Estimate</u>		<u>Estimate</u>		<u>Estimate</u>		<u>Estimate</u>		<u>Complete</u>			
(U) AF RDT&E																		
(U) Other APPN																		
(U) <u>D. Acquisition Strategy</u>																		
Implement spiral develop, integration and sustain web-enabled COP capabilities that are interoperable with existing Service systems. Identify execution-level requirements and candidate solutions, evaluate those potential solutions against the stated requirements, and develop COE based, spiral developed capabilities in 6 month increments. FIOP developed capabilities will be tested and evaluated for operational utility in Service test facilities and at operational locations. FIOP capabilities will then be migrated to Service SOR systems for sustainment.																		
(U) <u>E. Schedule Profile</u>																		
		<u>FY 2001</u>					<u>FY 2002</u>					<u>FY 2003</u>						
		1	2	3	4		1	2	3	4		1	2	3	4			
(U) Rqmts/Engr Management																		
(U) Execution Management Capability																		
(U) Tactical COE Workstation Development																		
(U) COE Support for Joint VMF																		
* Denotes completed event																		
X Denotes planned event																		
Project 5051					Page 16 of 18 Pages					Exhibit R-2A (PE 0207434F)								

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2002				
BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT			
05 - Engineering and Manufacturing Development				0207434F Link 16 Support and Sustainment				5051			
(U) A. Project Cost Breakdown (\$ in Thousands)											
						<u>FY 2001</u>		<u>FY 2002</u>		<u>FY 2003</u>	
(U)	REQUIREMENTS & ENGINEERING MANAGEMENT									2,200	
(U)	EXECUTION MANAGEMENT CAPABILITY									7,275	
(U)	TACTICAL COE WORKSTATION DEVELOPMENT									2,889	
(U)	COE SUPPORT FOR JOINT VARIABLE MESSAGE FORMAT									2,587	
(U)	Total									14,951	
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)											
(U) Performing Organizations:											
<u>Contractor or</u>	<u>Contract</u>										
<u>Government</u>	<u>Method/Type</u>	<u>Award or</u>	<u>Performing</u>	<u>Project</u>							
<u>Performing</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Activity</u>	<u>Office</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>	
<u>Activity</u>	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>	<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Complete</u>	<u>Program</u>	
<u>Product Development Organizations</u>											
Execution Management	TBD	TBD						6,877	Continuing	TBD	
Contractor											
Tactical Coe WS Contractor	TBD	TBD						2,730	Continuing	TBD	
JVMF Contractor	TBD	TBD						2,480	Continuing	TBD	
<u>Support and Management Organizations</u>											
Multi-Service Contractor	Various	Various						2,364	Continuing	TBD	
Support											
MITRE	FPLOE	Various						500	Continuing	TBD	
<u>Test and Evaluation Organizations</u>											

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)				DATE February 2002		
BUDGET ACTIVITY	PE NUMBER AND TITLE			PROJECT		
05 - Engineering and Manufacturing Development	0207434F Link 16 Support and Sustainment			5051		
	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
	<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Complete</u>	<u>Program</u>
<u>Subtotals</u>						
Subtotal Product Development				12,087	TBD	TBD
Subtotal Support and Management				2,864	TBD	TBD
Subtotal Test and Evaluation						
Total Project				14,951	TBD	TBD

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 2002
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BUDGET ACTIVITY 05 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0207701F Full Combat Mission Training	PROJECT 5012
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COST (\$ in Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
5012 Full Combat Mission Training	0	3,725	3,731	3,795	3,864	3,935	4,010	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0

In FY 2002, Project Number 655012, Full Combat Mission Training, efforts were transferred from PE 0604227F, Distributed Mission Training, Project Number 654673, Distributed Mission Training, in order to consolidate accounts supporting Distributed Mission Training in to a single PE to provide for more effective program management and oversight. This is not a program new start

(U) A. Mission Description

Distributed Mission Training (DMT) is revolutionizing aerospace team training by implementing a 'train the way we fight' philosophy -- as a team. The DMT program provides a shared synthetic environment of geographically separated aircraft simulators and will link real time to C3I assets and other battlefield systems in a synthetic battlefield environment. This will allow the Air Force to conduct mission rehearsal and combat mission training, which today can only be done to a limited extent because of constraints on flying hours, platform and airspace availability, as well as environmental constraints. DMT is funded principally with Operations and Maintenance funds. Engineering development efforts focus on development, demonstration, and transitioning of enhancements of critical functions associated with the DMT network and linked simulators. Areas of emphasis include development and demonstration of network architectures, common databases and database interfaces, improved simulator fidelity, and integration with constructive simulations for C3I. The ultimate objective of the program is for DMT to be able to conduct full joint and combined forces mission rehearsals.

(U) FY 2001 (\$ in Thousands)

- (U) \$0 No Activity
- (U) \$0 Total

(U) FY 2002 (\$ in Thousands)

- (U) \$456 Continue development, demonstration and insertion of multi-level security capability
- (U) \$1,901 Continue development, demonstration and insertion of DMT related technologies. Includes but not limited to common databases and improved image generation fidelity
- (U) \$1,368 Continue Program office support
- (U) \$3,725 Total

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 2002		
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT		
05 - Engineering and Manufacturing Development	0207701F Full Combat Mission Training	5012		
(U) <u>A. Mission Description Continued</u>				
(U) <u>FY 2003 (\$ in Thousands)</u>				
(U) \$461	Continue development, demonstration and insertion of multi-level security capability			
(U) \$1,902	Continue development, demonstration and insertion of DMT related technologies. Includes but not limited to common databases and improved image generation fidelity			
(U) \$1,368	Continue Program office support			
(U) \$3,731	Total			
(U) <u>B. Budget Activity Justification</u>				
This program element is included in Budget Activity 5 - Engineering and Manufacturing Development (EMD) as it supports development, demonstration and insertion of Distributed Mission Training applications.				
(U) <u>C. Program Change Summary (\$ in Thousands)</u>				
	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Total Cost</u>
(U) Previous President's Budget	0	3,763	3,740	TBD
(U) Appropriated Value		3,763		
(U) Adjustments to Appropriated Value				
a. Congressional/General Reductions		-38		
b. Small Business Innovative Research				
c. Omnibus or Other Above Threshold Reprogram				
d. Below Threshold Reprogram				
e. Rescissions				
(U) Adjustments to Budget Years Since FY 2002 PBR		0	-9	
(U) Current Budget Submit/FY 2003 PBR		3,725	3,731	TBD
(U) <u>Significant Program Changes:</u>				
In FY 2002 Project Number 5012, Full Combat Mission Training, efforts were transferred from PE 0604227F, Distributed Mission Training, Project Number 4673, Distributed Mission Training, in order to consolidate accounts supporting Distributed Mission Training in to a single PE to provide for more effective program management and oversight. This is not a program new start				
Project 5012	Page 2 of 4 Pages	Exhibit R-2 (PE 0207701F)		

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 2002	
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0207701F Full Combat Mission Training				PROJECT 5012	
(U) D. Other Program Funding Summary (\$ in Thousands)									
	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E								Continuing	TBD
(U) PE 0207133, F-16 Squadrons	0	4,300	0	0	0	0	0	Continuing	TBD
(U) AF O&M								Continuing	TBD
(U) PE 0207701F, Full Combat Mission Training, O&M, AF	0	80,533	75,459	67,613	66,010	72,868	68,624	Continuing	TBD
Note 1: FY 2002 RDT& E funding in PE 0207133 are Congressional adds specifically for F-16 Distributed Training Centers									
Note 2: FY 02 - FY 07 Other Program Funding funding transferred from individual weapon system PEs to PE 27701F, Full Combat Mission Training, to consolidate accounts supporting Distributed Mission Training into a single PE to provide for more effective program management and oversight. This is not a program new start.									
(U) E. Acquisition Strategy									
An innovative acquisition strategy is being employed for some weapon systems in conjunction with DMT. Termed Commercial Training Simulation Service (CTSS), this strategy differs significantly from previous AF simulator procurements. It shifts from govt-procured simulators to a contractor-provided service. The contractor owns and provides the simulator equipment, maintains simulator concurrency with the weapons system, and has incentives to keep his equipment abreast with the latest simulator and network technologies. CTSS contracts are currently in place for F-15C, F-16, AWACS, and Operations and Integration.									
(U) F. Schedule Profile									
				<u>FY 2001</u>		<u>FY 2002</u>		<u>FY 2003</u>	
				1	2	3	4	1	2
(U) F-16 Four Ship Operations begin: Shaw AFB									X
(U) F-16 Single Ship Operations begin: MT Home									X
(U) AWACS Operations begin: Tinker #2								X	
(U) F-16 4-ship operations begin: Spangdahlem									X
(U) F-16 2-ship operations begin (adds one device): Mt. Home #2:									X
Project 5012			Page 3 of 4 Pages				Exhibit R-2 (PE 0207701F)		

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 2002		
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0305176F Combat Survivor Evader Locator				PROJECT 4522		
COST (\$ in Thousands)		FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
4522	CSAR EMD	10,074	11,344	14,274	15,009	0	0	0	0	112,827
Quantity of RDT&E Articles		0	0	0	0	0	0	0	0	0
<p>(U) <u>A. Mission Description</u> The Combat Survivor Evader Locator (CSEL) joint program, with the Air Force as lead service, will provide enhanced Combat Search and Rescue (CSAR) communications and location capabilities by replacing antiquated PRC-90 and -112 survivor radios with a new end-to-end system. The CSEL system will be used by all the Services and, potentially, non-DoD government agencies. CSEL features include a new hand-held radio that incorporates secure two-way over-the-horizon messaging, line-of-sight voice, near-real-time geopositioning, verification of evader identity and condition, and low probability of intercept/low probability of detection communications. The system is now being developed in an evolutionary fashion per the updated Operational Requirements Document approved in February 2000: Block 1 will meet threshold requirements for Initial Operational Capability and Block 2 will add technical interoperability enhancements.</p> <p>(U) <u>FY 2001 (\$ in Thousands)</u> (U) \$7,115 CSEL Engineering and Manufacturing Development (U) \$420 Government Test and Operational Assessment (U) \$2,539 Other Government Support (U) \$10,074 Total</p> <p>(U) <u>FY 2002 (\$ in Thousands)</u> (U) \$8,073 CSEL Engineering and Manufacturing Development (U) \$1,252 Government Test and Operational Assessment (U) \$2,019 Other Government Support (U) \$11,344 Total</p>										
Project 4522			Page 1 of 5 Pages				Exhibit R-2 (PE 0305176F)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 2002		
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT		
05 - Engineering and Manufacturing Development	0305176F Combat Survivor Evader Locator	4522		
(U) <u>A. Mission Description Continued</u>				
(U) <u>FY 2003 (\$ in Thousands)</u>				
(U) \$10,083	CSEL Engineering and Manufacturing Development			
(U) \$1,929	Government Test and Operational Assessment			
(U) \$2,262	Other Government Support			
(U) \$14,274	Total			
(U) <u>B. Budget Activity Justification</u>				
This program is in Budget Activity 5, Engineering and Manufacturing Development, because it is in engineering and manufacturing development and has not received full-rate production approval.				
(U) <u>C. Program Change Summary (\$ in Thousands)</u>				
	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Total Cost</u>
(U) Previous President's Budget	10,742	11,486	1,409	83,372
(U) Appropriated Value	10,842	11,486		
(U) Adjustments to Appropriated Value				
a. Congressional/General Reductions	-76	-142		
b. Small Business Innovative Research	-65			
c. Omnibus or Other Above Threshold Reprogram				
d. Below Threshold Reprogram	-603			
e. Rescissions	-24			
(U) Adjustments to Budget Years Since FY 2002 PBR			12,865	
(U) Current Budget Submit/FY 2003 PBR	10,074	11,344	14,274	112,827
(U) <u>Significant Program Changes:</u>				
FY 2001: Below Threshold Reprogram to support higher Air Force priorities				
FY 2003: Adjustment to complete Block 2 development effort per revised cost estimate				
Project 4522	Page 2 of 5 Pages	Exhibit R-2 (PE 0305176F)		

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)							DATE February 2002					
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0305176F Combat Survivor Evader Locator				PROJECT 4522				
(U) <u>D. Other Program Funding Summary (\$ in Thousands)</u>												
	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>			
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>				
(U) Other Procurement, Air Force - WSC 837170 (Budget Activity 3)	7,628	0	11,049	9,109	17,249	28,427	32,062	73,062	191,116			
Note: Army and Navy equipment is funded separately by those services.												
(U) <u>E. Acquisition Strategy</u> All major contracts within this Program Element were awarded after full and open competition.												
(U) <u>F. Schedule Profile</u>												
	<u>FY 2001</u>			<u>FY 2002</u>			<u>FY 2003</u>					
	1	2	3	4	1	2	3	4	1	2	3	4
(U) Government Developmental Testing	*	*										
(U) Operational Assessment		*										
(U) Low-Rate Initial Production (LRIP) Lot 1 Award				*								
(U) LRIP Lot 2 Award						X						
(U) LRIP Lot 1 First Unit Delivery						X						
(U) Government Developmental Testing						X	X					
(U) Multi-Service Operational Test & Evaluation									X			
(U) LRIP Lot 2 First Unit Delivery									X			
(U) Full Rate Production Decision												X
* = completed event												
X = planned event												
Project 4522			Page 3 of 5 Pages				Exhibit R-2 (PE 0305176F)					

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2002			
BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT		
05 - Engineering and Manufacturing Development				0305176F Combat Survivor Evader Locator				4522		
(U) A. Project Cost Breakdown (\$ in Thousands)										
						<u>FY 2001</u>		<u>FY 2002</u>		<u>FY 2003</u>
(U)	CSEL Engineering and Manufacturing Development					7,115		8,073		10,083
(U)	Government Test and Operational Assessment					420		1,252		1,929
(U)	Other Government Support					2,539		2,019		2,262
(U)	Total					10,074		11,344		14,274
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)										
(U) Performing Organizations:										
<u>Contractor or</u>	<u>Contract</u>									
<u>Government</u>	<u>Method/Type</u>	<u>Award or</u>	<u>Performing</u>	<u>Project</u>						
<u>Performing</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Activity</u>	<u>Office</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Activity</u>	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>	<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Complete</u>	<u>Program</u>
<u>Product Development Organizations</u>										
Boeing	CPAF	23 Feb 96	85,162	85,162	47,917	7,115	8,073	10,083	11,974	85,162
SMC (COBRA)	Multiple	Multiple	4,000	4,000	4,000	0	0	0	0	4,000
<u>Support and Management Organizations</u>										
SPAWAR	MIPR	Multiple	N/A	N/A	1,503	892	481	1,192	550	4,618
PRC/ARINC/BD Systems	CPAF	Multiple	N/A	N/A	1,680	636	648	0	0	2,964
FFRDC (MITRE/Aerospace)	CPAF	Multiple	N/A	N/A	3,473	755	680	750	750	6,408
MANTECH	CPAF	Multiple	N/A	N/A	600	0	0	0	0	600
SMC	CPAF	Multiple	N/A	N/A	426	169	172	175	180	1,122
JPRA	MIPR	Nov 02	N/A	N/A	0	0	0	110	0	110
Miscellaneous	Multiple	Multiple	N/A	N/A	440	87	38	35	35	635
<u>Test and Evaluation Organizations</u>										
AFOTEC	CPAF	Multiple	N/A	N/A	290	0	0	0	0	290
746TS	CPAF	Multiple	N/A	N/A	1,308	0	0	0	0	1,308
Joint Spectrum Center	CPAF	Multiple	N/A	N/A	202	110	100	52	53	517
ESC (TBMCS SPO)	CPAF	Multiple	N/A	N/A	0	0	0	523	250	773
Project 4522				Page 4 of 5 Pages				Exhibit R-3 (PE 0305176F)		

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2002			
BUDGET ACTIVITY					PE NUMBER AND TITLE			PROJECT		
05 - Engineering and Manufacturing Development					0305176F Combat Survivor Evader Locator			4522		
(U) <u>Performing Organizations Continued:</u>										
<u>Test and Evaluation Organizations</u>										
EPG	MIPR	Multiple	N/A	N/A	90	190	900	500	500	2,180
JITC	MIPR	Multiple	N/A	N/A	197	120	252	102	103	774
DISA	MIPR	Multiple	N/A	N/A	0	0	0	462	364	826
CECOM	MIPR	Multiple	N/A	N/A	0	0	0	290	250	540
					<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Subtotals</u>					<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Complete</u>	<u>Program</u>
Subtotal Product Development					51,917	7,115	8,073	10,083	11,974	89,162
Subtotal Support and Management					8,122	2,539	2,019	2,262	1,515	16,457
Subtotal Test and Evaluation					2,087	420	1,252	1,929	1,520	7,208
Total Project					62,126	10,074	11,344	14,274	15,009	112,827

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 2002			
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0401318F CV-22				PROJECT 4103			
COST (\$ in Thousands)		FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost	
4103	CV-22	0	188,649	11,449	15,926	8,401	4,996	4,990	Continuing	TBD	
Quantity of RDT&E Articles		0	2	0	0	0	0	0	0	0	
<p>(U) <u>A. Mission Description</u> The CV-22 is a Special Operations Forces (SOF) variant of the V-22 vertical lift, multi-mission aircraft. The CV-22 will provide critical capability to insert, extract, and resupply special operation forces into denied or sensitive territory, not currently provided by existing aircraft. This aircraft will be baselined upon the V-22 aircraft (MV-22 configuration) with added terrain following radar, fuel tanks, radios and flare/chaff dispensers, radar warning receiver and jammer, and infrared countermeasures (CV-22 Block 0 configuration). CV-22 production buys will begin in FY04.</p> <p>This RDT&E funding is required to continue the design, integration, testing and certification of CV-22-required GANS/GATM components for compliance with the GANS/GATM Capstone Requirements Document (CRD). FY03 continues the work begun in FY02 to incorporate the Traffic Collision Avoidance System (TCAS).</p> <p>(U) <u>FY 2001 (\$ in Thousands)</u> (U) \$0 No Activity (U) \$0 Total</p> <p>(U) <u>FY 2002 (\$ in Thousands)</u> (U) \$770 Engineering, Development and Non-Recurring Engineering and System Integration of Global Air Navigation System/Global Air Traffic Management (GANS/GATM) equipment to ensure worldwide airspace access for the CV-22 (U) \$3,784 Engineering and design efforts to integrate Traffic Collision Avoidance System (TCAS) into the CV-22 (U) \$184,095 Build two CV-22 operational test articles (U) \$188,649 Total</p> <p>(U) <u>FY 2003 (\$ in Thousands)</u> (U) \$11,449 Continuation of the engineering and design efforts to integrate a Traffic Collision Avoidance System into the CV-22 (U) \$11,449 Total</p>											
Project 4103				Page 1 of 5 Pages				Exhibit R-2 (PE 0401318F)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 2002							
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT							
05 - Engineering and Manufacturing Development	0401318F CV-22	4103							
(U) B. Budget Activity Justification									
This program is in Budget Activity 5, Engineering and Manufacturing Development. The CV-22 Program is developing the first operational tilt-rotor aircraft for use by the Special Operations Forces.									
(U) C. Program Change Summary (\$ in Thousands)									
		<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Total Cost</u>				
(U) Previous President's Budget		0	10,008	11,449	TBD				
(U) Appropriated Value		0	190,008						
(U) Adjustments to Appropriated Value									
a. Congressional/General Reductions			-1,359						
b. Small Business Innovative Research									
c. Omnibus or Other Above Threshold Reprogram									
d. Below Threshold Reprogram									
e. Rescissions									
(U) Adjustments to Budget Years Since FY 2002 PBR		0	0	0					
(U) Current Budget Submit/FY 2003 PBR		0	188,649	11,449	TBD				
(U) Significant Program Changes:									
In FY02 Congress appropriated additional RDT&E funds to build two production representative test vehicles in order to conduct operational test and evaluation.									
(U) D. Other Program Funding Summary (\$ in Thousands)									
	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E									
(U) Other APPN									
(U) AP,AF, PE 0401318F	55,012	0	112,327	302,593	384,080	331,675	306,148		3,326,005
(U) E. Acquisition Strategy									
All development for the V-22 program as a whole has been by the prime contractor, a consortium of the Bell and Boeing firms, selected as the sole source. Subsequent to the FY03 program, the sole source consortium is utilized to conduct developmental block upgrade and remedial effort.									
Project 4103	Page 2 of 5 Pages			Exhibit R-2 (PE 0401318F)					

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)							DATE February 2002					
BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT				
05 - Engineering and Manufacturing Development				0401318F CV-22				4103				
(U) <u>F. Schedule Profile</u>												
		<u>FY 2001</u>				<u>FY 2002</u>				<u>FY 2003</u>		
	1	2	3	4	1	2	3	4	1	2	3	4
(U)	Award GANS/GATM NRE and System Integration contract						X					
(U)	Award TCAS contract						X					
(U)	Award operational test article contract					X						
(U)	* = completed milestone											
(U)	X = planned milestone											

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2002			
BUDGET ACTIVITY				PE NUMBER AND TITLE			PROJECT			
05 - Engineering and Manufacturing Development				0401318F CV-22			4103			
(U) <u>A. Project Cost Breakdown (\$ in Thousands)</u>										
						<u>FY 2001</u>		<u>FY 2002</u>		<u>FY 2003</u>
(U)	Commercial vendor support for testing							0		0
(U)	Commercial vendor engineering							4,554		11,449
(U)	Commercial vendor aircraft development							184,095		0
(U)	Government testing							0		0
(U)	Government program management									
(U)	Total							188,649		11,449
(U) <u>B. Budget Acquisition History and Planning Information (\$ in Thousands)</u>										
(U) <u>Performing Organizations:</u>										
	<u>Contractor or</u>	<u>Contract</u>								
	<u>Government</u>	<u>Method/Type</u>	<u>Award or</u>	<u>Performing</u>	<u>Project</u>					
	<u>Performing</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Activity</u>	<u>Office</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>
	<u>Activity</u>	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>	<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Complete</u>
	<u>Program</u>									<u>Total</u>
<u>Product Development Organizations</u>										
	Build two production	TBD	2QFY02		184,509			184,095		184,095
	representative test vehicles -									
	Bell Boeing									
	TCAS incorporation for	C,CPFF	3QFY02				4,554	11,449	Continuing	TBD
	GANS/GATM compliance -									
	Bell Boeing									
<u>Support and Management Organizations</u>										
	Testing technical & logistics	C,CPFF								Continuing
	support - Bell Boeing									TBD
	Management of testing OGC	PO								Continuing
										TBD
<u>Test and Evaluation Organizations</u>										
	Air Force Operational Test &	PO								Continuing
	Evaluation Ctr.									TBD

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)					DATE February 2002	
BUDGET ACTIVITY		PE NUMBER AND TITLE			PROJECT	
05 - Engineering and Manufacturing Development		0401318F CV-22			4103	
		<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>
		<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Complete</u>
						<u>Total</u>
	<u>Subtotals</u>					<u>Program</u>
	Subtotal Product Development			188,649	11,449	TBD
	Subtotal Support and Management					TBD
	Subtotal Test and Evaluation					TBD
	Total Project			188,649	11,449	TBD

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 2002			
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0603840F Global Broadcast Service (GBS)				PROJECT 4887			
COST (\$ in Thousands)		FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost	
4887	Global Broadcast Service (GBS)	0	34,202	22,589	16,792	15,505	20,762	6,911	16,936	133,697	
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	
<p>NOTE 1: Prior to FY02, GBS funding was contained in PE 0603854F, project 642679.</p> <p>NOTE 2: In FY02, GBS received \$7,000 as part of the Defense Emergency Relief Fund (DERF). Funding will be used to achieve required weight and size reductions on Army receive suites (terminals) in support of operation Enduring Freedom. This funding is not reflected in the FY02 program total.</p> <p>(U) <u>A. Mission Description</u> Global Broadcast Service will provide DoD with efficient, high data rate broadcast between many distributed information sources and warfighters who will receive the broadcast directly on small, inexpensive user terminals in accordance with the GBS Operational Requirements Document (ORD) validated by the Joint Requirements Oversight Council in Apr 1995. GBS Broadcast data includes digitized imagery, logistics and weather data, maps, operational orders, and video. GBS space segment includes packages on Navy operational satellites UFO 8, 9, and 10 providing near-worldwide service, augmentation by commercial leased Ku-band packages, and throughput on future wideband satellites. GBS Broadcast Management and Terminal segments include uplink sites and receive equipment which integrate with Service fixed- and tactical-network equipment through standard commercial interfaces. Service production Receive Suite and integration into Service networks are funded in other PEs.</p> <p>(U) <u>FY 2001 (\$ in Thousands)</u> (U) \$0 No activity-- Funded in PE 0603854F (U) \$0 Total</p> <p>(U) <u>FY 2002 (\$ in Thousands)</u> (U) \$25,974 Continue System Development and Test (U) \$2,668 Continue Phase 2 Government System Integration (U) \$2,480 Continue Program Support (U) \$1,200 Continue Fielding Activities (U) \$1,880 Continue System Test & Evaluation Support (U) \$34,202 Total</p>											
Project 4887				Page 1 of 5 Pages				Exhibit R-2 (PE 0603840F)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 2002		
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT		
05 - Engineering and Manufacturing Development	0603840F Global Broadcast Service (GBS)	4887		
(U) <u>A. Mission Description Continued</u>				
(U) <u>FY 2003 (\$ in Thousands)</u>				
(U) \$16,925	Continue System Development and Test			
(U) \$2,183	Continue Phase 2 Government System Integration			
(U) \$2,290	Continue Program Support			
(U) \$1,191	Continue System Test & Evaluation Support			
(U) \$0	No Activity			
(U) \$22,589	Total			
(U) <u>B. Budget Activity Justification</u>				
Funding is in budget activity 5, Engineering and Manufacturing Development, since program is fielding pre-production equipment.				
(U) <u>C. Program Change Summary (\$ in Thousands)</u>				
	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Total Cost</u>
(U) Previous President's Budget	0	34,544	25,444	137,547
(U) Appropriated Value	0	34,544		
(U) Adjustments to Appropriated Value				
a. Congressional/General Reductions	0			
b. Small Business Innovative Research	0			
c. Omnibus or Other Above Threshold Reprogram	0			
d. Below Threshold Reprogram	0			
e. Rescissions	0			
(U) Adjustments to Budget Years Since FY 2002 PBR	0	-342	-2,855	
(U) Current Budget Submit/FY 2003 PBR	0	34,202	22,589	133,697
(U) <u>Significant Program Changes:</u>				
The GBS Program has experienced several programmatic problems that resulted in a schedule breach from the Acquisition Program Baseline (APB) ground segment schedule outlined in the Dec 99 Selected Acquisition Report (SAR). A new program schedule baseline with incremental IOCs (Sep 01, Sep 02, and Sep 03) was approved in Jul 00. The rephasing includes moving to spiral development with system delivery in approximate 6 month increments beginning in Oct 00. IOC 1 and MSIII have slipped as a result of Operational Testing in lateCY01. Initial deployments will be to EUCOM.				
-- \$2,800 for Navy terminal support was redistributed to Other Procurement, Navy				
Project 4887	Page 2 of 5 Pages	Exhibit R-2 (PE 0603840F)		

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)							DATE		
							February 2002		
BUDGET ACTIVITY				PE NUMBER AND TITLE			PROJECT		
05 - Engineering and Manufacturing Development				0603840F Global Broadcast Service (GBS)			4887		
(U) <u>D. Other Program Funding Summary (\$ in Thousands)</u>									
	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E									
(U) Other APPN									
<p>Note: All the Services and several DoD agencies have many programs which interface with or support GBS. Examples include: Defense Information System Network (DISN); DISA Information Dissemination Management Program; ARPA Battlefield Awareness and Data Dissemination (BADD) Advanced Concept Tactical Demonstration (ACTD); ARPA-DISA Bosnia Command Control Augmentation (BC2A) Program including Joint Broadcast Service (JBS); Navy UFO Program; Army Ground Terminal Programs; Navy SATCOM Ship Terminal Program; and Air Force MILSATCOM Terminals (PE 0303601F): AF GBS Receive Terminals (Project 836780, line P-67, PE 0303601F, Milstar Satellite Comm Sys, Other Procurement; AF Ground Multiband Terminal (GMT) Development; and AF Wideband Terminal (AWT) Development.</p>									
(U) <u>E. Acquisition Strategy</u>									
<p>The acquisition strategy has been revised to a spiral development/incremental build approach using Integrated Product Development (IPD)/Integrated product Team (IPT) approach. Program will maintain a single integration contractor for the GBS Phase 2 system while incorporating cross program/system IPTs for total system performance.</p>									
(U) <u>F. Schedule Profile</u>									
				<u>FY 2001</u>		<u>FY 2002</u>		<u>FY 2003</u>	
				1 2 3 4		1 2 3 4		1 2 3 4	
(U) Previous effort performed under PE0603854F									
(U) IOC 1									
(U) IOC 2									
(U) Milestone III									
* = Completed Event; X = Planned Event									

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2002				
BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT			
05 - Engineering and Manufacturing Development				0603840F Global Broadcast Service (GBS)				4887			
(U) A. Project Cost Breakdown (\$ in Thousands)											
						<u>FY 2001</u>		<u>FY 2002</u>		<u>FY 2003</u>	
(U)	Continue System Development and Test					0		25,974		16,980	
(U)	Continue Phase 2 Government System Integration					0		2,668		2,183	
(U)	Continue Program Support					0		2,480		2,235	
(U)	Continue Fielding Activities					0		1,200		0	
(U)	Continue System Test & Evaluation Support					0		1,880		1,191	
(U)	Total					0		34,202		22,589	
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)											
(U) Performing Organizations:											
	<u>Contractor or Government</u>	<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Performing Activity</u>	<u>Project Office</u>	<u>Total Prior to FY 2001</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Activity</u>	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>						
<u>Product Development Organizations</u>											
	Raytheon System Corp	CPAF	18 Nov 97	105,307	105,307	0	0	25,974	16,925	6,112	49,011
	Phase 2 Government System Integration	Various	Various		22,332	0	0	2,668	2,290	1,007	5,965
<u>Support and Management Organizations</u>											
	Program Support - Various		Various	N/A	N/A	0	0	2,480	2,183	4,620	9,283
	Fielding - Various			N/A	N/A	0	0	1,200			1,200
	Sustainment (Vendor TBD)			N/A	N/A	0	0	0		64,659	64,659
<u>Test and Evaluation Organizations</u>											
	Various		Various	N/A	N/A	0	0	1,880	1,191	508	3,579
Project 4887				Page 4 of 5 Pages				Exhibit R-3 (PE 0603840F)			

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)				DATE February 2002					
BUDGET ACTIVITY				PE NUMBER AND TITLE			PROJECT		
05 - Engineering and Manufacturing Development				0603840F Global Broadcast Service (GBS)			4887		
(U) Government Furnished Property:									
<u>Item</u>	<u>Contract</u>	<u>Award or</u>	<u>Delivery</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Description</u>	<u>Method/Type</u>	<u>or Funding</u>	<u>Obligation</u>	<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Complete</u>	<u>Program</u>
	<u>Vehicle</u>	<u>Date</u>	<u>Date</u>						
<u>Product Development Property</u>									
<u>Support and Management Property</u>									
<u>Test and Evaluation Property</u>									
<u>Subtotals</u>				<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
				<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Complete</u>	<u>Program</u>
Subtotal Product Development				0	0	28,642	19,215	7,119	54,976
Subtotal Support and Management				0	0	3,680	2,183	69,279	75,142
Subtotal Test and Evaluation				0	0	1,880	1,191	508	3,579
Total Project				0	0	34,202	22,589	76,906	133,697

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 2002			
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604012F Joint Helmet Mounted Cueing System (JHMCS)				PROJECT 4789			
COST (\$ in Thousands)		FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost	
4789	Joint Helmet Mounted Cueing System (JHMCS)	1,439	5,901	1,859	861	2,919	2,976	3,023	Continuing	TBD	
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	
<p>Prior to FY00 JHMCS was funded as part of PE 64201F (Integrated Avionics Planning and Development).</p> <p>(U) <u>A. Mission Description</u> This joint Air Force/Navy program (Air Force is the lead service) develops a helmet display system capable of depicting aircraft heading data, pilot's viewing perspective, target indication tracking/cueing, and other flight information on the aircrew visor to enhance overall pilot situational awareness. Displaying this information allows the pilot to quickly align sensors and weapons on targets and engage threats using high off-boresight weapons such as the AIM-9X. A program restructure was approved in Dec 99 to extend the EMD contract and allow for redesign of the Helmet Vehicle Interface (HVI) cable to improve reliability, software upgrades to improve built-in test, and maturation of high off-boresight (HOBS) cueing capability with the AIM-9X. The approved restructure added a second LRIP in FY01 and delayed the Milestone III Production Decision from Sep 00 to Aug 02. A third LRIP was added in FY02 by direction of AFPEO/FB to accelerate the fielding of helmets to meet warfighter requirements. Additional FY02 activities include an Electronics Unit software update, helmet fit process improvements, regression testing, preparation for Milestone III (full rate production), a night display and tracking/cueing study, and an improved magnetic mapping processes study effort to reduce the life cycle costs of deployed aircraft.</p> <p>(U) <u>FY 2001 (\$ in Thousands)</u> (U) \$767 Continued JHMCS Engineering and Manufacturing Development (EMD) Contract (U) \$672 Continued Program Management Support (U) \$1,439 Total</p> <p>(U) <u>FY 2002 (\$ in Thousands)</u> (U) \$1,800 Continue EMD contract to include correction of deficiencies found in OT, and EMD contract completion activities (U) \$3,633 Continue Night Vision (NV) study efforts, resolve OT deficiencies, and begin NV and adaptive mapping/tracking study implementation (U) \$468 Continue Program Management Support (U) \$5,901 Total</p>											
Project 4789				Page 1 of 6 Pages				Exhibit R-2 (PE 0604012F)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 2002																																																													
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604012F Joint Helmet Mounted Cueing System (JHMCS)	PROJECT 4789																																																													
<p>(U) <u>A. Mission Description Continued</u></p> <p>(U) <u>FY 2003 (\$ in Thousands)</u></p> <table style="width:100%; border: none;"> <tr> <td style="width: 15%;">(U) \$1,419</td> <td>Continue NV implementation and Operational Test deficiencies resolution, and begin P3I activities</td> </tr> <tr> <td>(U) \$440</td> <td>Continue Program Management Support</td> </tr> <tr> <td>(U) \$1,859</td> <td>Total</td> </tr> </table> <p>(U) <u>B. Budget Activity Justification</u></p> <p>This program is in budget activity 5 - EMD, Phase II, Research Category 6.4 because of the development nature of this program.</p> <p>(U) <u>C. Program Change Summary (\$ in Thousands)</u></p> <table style="width:100%; border: none;"> <thead> <tr> <th style="width: 55%;"></th> <th style="text-align: center;"><u>FY 2001</u></th> <th style="text-align: center;"><u>FY 2002</u></th> <th style="text-align: center;"><u>FY 2003</u></th> <th style="text-align: center;"><u>Total Cost</u></th> </tr> </thead> <tbody> <tr> <td>(U) Previous President's Budget</td> <td style="text-align: center;">1,300</td> <td style="text-align: center;">5,960</td> <td style="text-align: center;">1,957</td> <td style="text-align: center;">TBD</td> </tr> <tr> <td>(U) Appropriated Value</td> <td style="text-align: center;">1,312</td> <td style="text-align: center;">5,960</td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Appropriated Value</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> a. Congressional/General Reductions</td> <td style="text-align: center;">-9</td> <td style="text-align: center;">-59</td> <td></td> <td></td> </tr> <tr> <td> b. Small Business Innovative Research</td> <td style="text-align: center;">-45</td> <td></td> <td></td> <td></td> </tr> <tr> <td> c. Omnibus or Other Above Threshold Reprogram</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> d. Below Threshold Reprogram</td> <td style="text-align: center;">184</td> <td></td> <td></td> <td></td> </tr> <tr> <td> e. Rescissions</td> <td style="text-align: center;">-3</td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Budget Years Since FY 2002 PBR</td> <td style="text-align: center;">0</td> <td></td> <td style="text-align: center;">-98</td> <td></td> </tr> <tr> <td>(U) Current Budget Submit/FY 2003 PBR</td> <td style="text-align: center;">1,439</td> <td style="text-align: center;">5,901</td> <td style="text-align: center;">1,859</td> <td style="text-align: center;">TBD</td> </tr> </tbody> </table> <p>(U) <u>Significant Program Changes:</u></p> <p>General:</p> <p>The Air Force and Navy PEOs approved the JHMCS program restructure plan in Dec 99. The restructure extended the EMD contract to improve HVI reliability and mature HOBS performance, added a second LRIP in FY01, and delayed the MSIII decision until late FY02. Production readiness in support of FRP will now occur in FY02. All HOBS cueing concerns were resolved during FY00. FY01 resolved the following R&M issues: canopy scratching, magnetic mapper ruggedness and open logistics documentation. JHMCS now consistently provides HOBS cueing to the limits of the AIM-9X, and DT/OT pilots now rate performance as 'excellent.' The Navy PEO approved the program for LRIP in May 00 for the F/A-18E/F. Both PEOs approved the program for its second LRIP in May 01 to procure units for the</p>			(U) \$1,419	Continue NV implementation and Operational Test deficiencies resolution, and begin P3I activities	(U) \$440	Continue Program Management Support	(U) \$1,859	Total		<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Total Cost</u>	(U) Previous President's Budget	1,300	5,960	1,957	TBD	(U) Appropriated Value	1,312	5,960			(U) Adjustments to Appropriated Value					a. Congressional/General Reductions	-9	-59			b. Small Business Innovative Research	-45				c. Omnibus or Other Above Threshold Reprogram					d. Below Threshold Reprogram	184				e. Rescissions	-3				(U) Adjustments to Budget Years Since FY 2002 PBR	0		-98		(U) Current Budget Submit/FY 2003 PBR	1,439	5,901	1,859	TBD
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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)							DATE February 2002																															
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604012F Joint Helmet Mounted Cueing System (JHMCS)			PROJECT 4789																															
<p>(U) <u>C. Program Change Summary (\$ in Thousands) Continued</u></p> <p>(U) <u>Significant Program Changes Continued:</u> F-15, F-16, and F/A-18E/F. The program was approved to start operational test and evaluation in Jun 01 and finished in early FY02. LRIP 3 was added to expedite delivery to meet warfighter requirements. FY2003 \$98K reduction due to reduction in program support.</p> <p>Schedule: The following schedule milestones are based on the approved restructure: AFPEO/FB approved the program to enter LRIP 2 in May 01 and to start OT&E in Jun 01; LRIP 2 contract award 4QFY01; MSIII decision in 4QFY02 and Air Force RAA in 4QFY03.</p> <p>(U) <u>D. Other Program Funding Summary (\$ in Thousands)</u></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:15%;"></th> <th style="width:10%;"><u>FY 2001</u></th> <th style="width:10%;"><u>FY 2002</u></th> <th style="width:10%;"><u>FY 2003</u></th> <th style="width:10%;"><u>FY 2004</u></th> <th style="width:10%;"><u>FY 2005</u></th> <th style="width:10%;"><u>FY 2006</u></th> <th style="width:10%;"><u>FY 2007</u></th> <th style="width:10%;"><u>Cost to</u></th> <th style="width:10%;"><u>Total Cost</u></th> </tr> <tr> <td></td> <td style="text-align: center;"><u>Actual</u></td> <td style="text-align: center;"><u>Estimate</u></td> <td style="text-align: center;"><u>Complete</u></td> <td></td> </tr> </thead> <tbody> <tr> <td>(U) RDT&E, BA 5, PE 0604201F, Integrated Avionics Planning and Development Note: Prior to FY01 JHMCS was funded as part of PE 0604201F.</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td style="text-align: right;">45,151</td> </tr> </tbody> </table> <p>(U) <u>E. Acquisition Strategy</u> JHMCS is an ACAT III joint USAF/USN program (USAF - executive service). The contract structure is a Cost Plus Award Fee (CPAF). The CPAF contract is through Boeing - St. Louis for integration into the F-15 and F/A-18 aircraft. All other aircraft integration will be handled by the respective platform Prime Contractor. Boeing has subcontracted to Vision Systems International (VSI) to provide JHMCS subsystems hardware/software. VSI is a partnership between Elbit (an Israeli company based in Ft Worth, TX) and Kaiser Electronics. The Joint Program Office is using a unique approach of developing common hardware as Government Furnished Equipment (GFE) to minimize platform integration risk. The results of this approach allows for substantial hardware commonality and 100% software commonality on all aircraft. Furthermore lessons learned from each aircraft integration is directly transferable to all aircraft. The program received approval to restructure in FY00, extending the EMD contract to allow resolution of deficiencies including poor reliability of the HVI cable and software enhancements to improve high off boresight cueing. The restructure added a second LRIP in FY01 and delayed Milestone III from Sep 00 until Aug 02. The revised schedule better synchronizes JHMCS with the parallel developed AIM-9X missile. Additionally, the PEO approved a third LRIP to accelerate the fielding of helmets to meet warfighter requirements.</p>										<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>		<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>		(U) RDT&E, BA 5, PE 0604201F, Integrated Avionics Planning and Development Note: Prior to FY01 JHMCS was funded as part of PE 0604201F.									45,151
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Project 4789			Page 3 of 6 Pages			Exhibit R-2 (PE 0604012F)																																

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BUDGET ACTIVITY					PE NUMBER AND TITLE					PROJECT			
05 - Engineering and Manufacturing Development					0604012F Joint Helmet Mounted Cueing System (JHMCS)					4789			
(U) F. Schedule Profile													
		<u>FY 2001</u>				<u>FY 2002</u>				<u>FY 2003</u>			
	1	2	3	4	1	2	3	4	1	2	3	4	
(U) LRIP 2 Production Decision (AFPEO/FB)			*										
(U) Air Force IOT&E - Starts			*										
(U) LRIP 2 Contract Award				*									
(U) Navy OPEVAL - Starts					*								
(U) LRIP 3 Production Decision (AFPEO/FB)					*								
(U) IOT&E/OPEVAL - Completes						X							
(U) LRIP 3 Contract Award							X						
(U) Full Rate Production Decision (MSIII)								X					
(U) F-15 RAA - 4th Qtr FY03												X	
X - Planned event													
* - Completed event													
Project 4789				Page 4 of 6 Pages				Exhibit R-2 (PE 0604012F)					

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2002				
BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT			
05 - Engineering and Manufacturing Development				0604012F Joint Helmet Mounted Cueing System (JHMCS)				4789			
(U) A. Project Cost Breakdown (\$ in Thousands)											
					<u>FY 2001</u>		<u>FY 2002</u>			<u>FY 2003</u>	
(U)	Project Cost Categories										
(U)	EMD				767		5,433			1,419	
(U)	Flight Test Support (AFFTC)				0		0			0	
(U)	Program Management				672		468			440	
(U)	Total				1,439		5,901			1,859	
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)											
(U) Performing Organizations:											
	<u>Contractor or Government Performing Activity</u>	<u>Contract Method/Type or Funding Vehicle</u>	<u>Award or Obligation Date</u>	<u>Performing Activity EAC</u>	<u>Project Office EAC</u>	<u>Total Prior to FY 2001</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Product Development Organizations</u>											
	Boeing Company	CPAF	2/97	0	0	15,622	767	5,433	1,419	Continuing	TBD
<u>Support and Management Organizations</u>											
	Various	Various	2/97	0	0	501	672	468	440	Continuing	TBD
<u>Test and Evaluation Organizations</u>											
	Various	Various	2/97	0	0	588	0	0	0		588
(U) Government Furnished Property:											
	<u>Item Description</u>	<u>Contract Method/Type or Funding Vehicle</u>	<u>Award or Obligation Date</u>	<u>Delivery Date</u>		<u>Total Prior to FY 2001</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Product Development Property</u>											
<u>Support and Management Property</u>											
<u>Test and Evaluation Property</u>											

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)					DATE February 2002	
BUDGET ACTIVITY	PE NUMBER AND TITLE			PROJECT		
05 - Engineering and Manufacturing Development	0604012F Joint Helmet Mounted Cueing System (JHMCS)			4789		
	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Subtotals</u>	<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Complete</u>	<u>Program</u>
Subtotal Product Development	15,622	767	5,433	1,419	TBD	TBD
Subtotal Support and Management	501	672	468	440	TBD	TBD
Subtotal Test and Evaluation	588	0	0	0	0	588
Total Project	16,711	1,439	5,901	1,859	TBD	TBD

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 2002	
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604222F Nuclear Weapons Support					
COST (\$ in Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	9,597	12,990	13,627	14,294	14,502	15,504	16,217	Continuing	TBD
4236 Engineering Analysis	1,226	2,113	2,115	2,126	2,150	2,662	2,960	Continuing	TBD
4807 Agent Defeat Weapons	3,486	5,431	5,360	5,838	5,822	6,062	6,245	Continuing	TBD
5708 Nuclear Weapons Support	4,885	5,446	6,152	6,330	6,530	6,780	7,012	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0

(U) **A. Mission Description**
 The AF Nuclear Weapons Product Support Center (AFNWPC) and the AF Nuclear Weapons and Counterproliferation Agency (AFNWCA) are tasked with maintaining and providing the core Air Force nuclear weapons expertise. These organizations provide technical and programmatic guidance for all Air Force nuclear weapon activities including weapons development/sustainment, interoperability, safety/security/surety, stockpile management/retirement, and counterproliferation assessments.

Specific mission tasking includes:

- Analyze and document nuclear weapons issues related to risk assessment, data collection, model development, and weapon effectiveness in support of the Joint DoD-DOE Surety Plan, DOE Stockpile Stewardship plan, DoD/DOE Long Range Planning Assessment, and the DoD/DOE Annual Weapon Certification.
- Support the DoD and Joint DoD/DOE weapons acquisition activities for the sustainment and/or development of nuclear weapons, delivery systems, weapon storage facilities, and logistical/maintenance equipment to include nuclear certification as required.
- Identify, evaluate, and assess current and projected counterproliferation systems operating in joint environments. Participate in the acquisition process as appropriate for those projects identified for development (e.g., Robust Nuclear Earth Penetrator (RNEP) and Surface Target Ordnance Package (STOP)).

Specific weapons and weapon systems for which these agencies provide nuclear expertise and have responsibilities include:

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BUDGET ACTIVITY 05 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604222F Nuclear Weapons Support
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(U) **A. Mission Description Continued**

--- The W62/Mk12, W78/Mk12A, W87/Mk21, and W80 nuclear warheads and the associated delivery systems (e.g., the Minuteman III and Peacekeeper Intercontinental Ballistic Missiles (ICBMs), the Air-Launched Cruise Missile (ALCM), and the Advanced Cruise Missile (ACM)).

--- The B61 and B83 strategic bombs and the associated delivery systems (e.g., B-52/B-2 strategic bombers, F-15E/F-16 dual capable aircraft, and NATO nuclear capable aircraft).

--- Logistical movement aircraft (e.g., C-130, C-141, and C-17 transport aircraft).

--- The associated logistics/maintenance handling, support, and test equipment.

Customers include:

--- Department of Defense (DoD) agencies (e.g., Office of Secretary of Defense (OSD), Defense Threat Reduction Agency (DTRA), Joint Staff, and Commander in Chiefs (CINCs) of nuclear-committed unified/specified commands

--- Air Force and Navy organizations/agencies

--- Department of Energy (DOE) organizations/agencies

--- NATO.

Efforts in this program are essential to maintaining current safety and reliability levels for weapons in the Air Force nuclear stockpile as well as addressing current and future Air Force nuclear deterrence and counterproliferation needs.

(U) **B. Budget Activity Justification**

These efforts are Budget Activity 05, Engineering and Manufacturing Development, because they result in identifying and developing potential solutions to problems and/or deficiencies in Air Force nuclear weapons and their supporting infrastructure

(U) **C. Program Change Summary (\$ in Thousands)**

	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Total Cost</u>
(U) Previous President's Budget	10,039	13,120	13,493	TBD
(U) Appropriated Value	10,133	13,120		
(U) Adjustments to Appropriated Value				
a. Congressional/General Reductions		-130		
b. Small Business Innovative Research	-331			
c. Omnibus or Other Above Threshold Reprogram				

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)				DATE
BUDGET ACTIVITY		PE NUMBER AND TITLE		
05 - Engineering and Manufacturing Development		0604222F Nuclear Weapons Support		
(U)	<u>C. Program Change Summary (\$ in Thousands) Continued</u>			
		<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>
				<u>Total Cost</u>
	d. Below Threshold Reprogram	-112		
	e. Rescissions	-93		
(U)	Adjustments to Budget Years Since FY 2002 PBR			134
(U)	Current Budget Submit/FY 2003 PBR	9,597	12,990	13,627
				TBD
(U)	<u>Significant Program Changes:</u>			
	No significant technical or schedule changes.			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)								DATE February 2002		
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604222F Nuclear Weapons Support				PROJECT 4236		
COST (\$ in Thousands)		FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
4236	Engineering Analysis	1,226	2,113	2,115	2,126	2,150	2,662	2,960	Continuing	
<p>(U) <u>A. Mission Description</u> Perform engineering analysis for all USAF nuclear weapons, delivery systems and counterproliferation/counterforce efforts. Provide the engineering and technical management expertise required for the Nuclear Certification Process for all USAF nuclear weapons, delivery systems, and logistical/maintenance support equipment. Provide technical expertise unavailable through organic resources in critical areas of nuclear weapons safety and security, nuclear operations, and counterproliferation.</p> <p>(U) <u>FY 2001 (\$ in Thousands)</u></p> <p>(U) \$100 Nuclear Aircraft System Support. Provided Aircraft Monitor and Control (AMAC) software analysis and technical expertise for continued nuclear weapons integration on US and Non-US NATO aircraft systems; completed revisions on three Aircraft Loading Manuals; completed twelve changes to loading/aircrew delivery manuals; and supported development work for pneumatic bomb racks for F-15 aircraft</p> <p>(U) \$830 Nuclear Weapons Program Support. Provided technical expertise to support development, fielding and updates of the W80, W62, W87, W78, W84, B61, and B83 weapons systems. Stockpile stewardship of these weapon systems consisted of weapons' Project Officer Group (POG) actions in safety analyses, program actions, and agreements. Documented and supported 11 POG meetings, 14 Executive POG meetings and 44 other subgroup and technical nuclear meetings. The Nuclear Weapons Management System and Knowledge Base System was updated; special studies on stockpile related matters continue; development flight test support for ALT 354 (fin kits) weapon modification program completed; technical analysis supporting life extension programs for all weapons systems except the W84 and W62 is on-going.</p> <p>(U) \$296 Counterproliferation Support. Provided continued technical support for counterproliferation assessments and technical expertise in the areas of nuclear, advanced technology and conventional systems identified as possible counterforce technologies. Provided technical and programmatic support on counterproliferation matters to AFNWCA and HQ USAF. Provided analyses to evaluate possible future nuclear weapon penetrator designs for survivability and effectiveness. Supported STRATCOM Scientific Advisory Group (SAG) Science & Technology (S&T) meetings, Nuclear Planning Group Study and Enduring Freedom/Infinite Justice planning.</p> <p>(U) \$1,226 Total</p>										
Project 4236			Page 4 of 22 Pages				Exhibit R-2A (PE 0604222F)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)		DATE February 2002
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
05 - Engineering and Manufacturing Development	0604222F Nuclear Weapons Support	4236
<p>(U) <u>A. Mission Description Continued</u></p> <p>(U) <u>FY 2002 (\$ in Thousands)</u></p> <p>(U) \$105 Nuclear Aircraft System Support. Revise and verify nuclear weapons loading , delivery, warhead mate and demate, and explosive ordnance disposal (EOD) technical orders; provide EOD technical support to DoD/DOE agencies; provide support on the nuclear hardness database; perform aircraft software analysis; support the nuclear aircraft surveillance test program, provide technical expertise for continued nuclear weapons integration of US and non-US aircraft systems; and provide logistic analysis as required.</p> <p>(U) \$1,696 Nuclear Weapons Program Support. Provide technical expertise to support development, fielding and updates of nuclear weapon military characteristics (MCs) and stockpile-to-target sequence (STS) documents; document and support all weapons safety analyses, program actions, and agreements; update the Nuclear Weapon Management System and Knowledge Base System; conduct special studies on stockpile related matters; conduct development flight testing for weapon modification programs to include B61 ALT 356; provide technical analysis to support life extension options for B83, B61, W80 and ICBM warheads, inactive stockpile issues, use control, long term storage, and dismantlement issues to weapon Lead Project Officers and Headquarters, USAF.</p> <p>(U) \$312 Counterproliferation Support. Provide technical support and engineering for joint DoD/DOE Acquisition Phase 6.2 for the Robust Nuclear Earth Penetrator (RNEP) effort; perform analyses of AF/DOE proposed alterations/modifications to the enduring stockpile; lead the development of new analytical methodologies that support these assessments; provide support for counterproliferation operational and assessment efforts other than Agent Defeat Weapon (ADW) effort.</p> <p>(U) \$2,113 Total</p> <p>(U) <u>FY 2003 (\$ in Thousands)</u></p> <p>(U) \$120 Nuclear Weapons Systems Support --- Perform independent nuclear surety analyses; develop nuclear certification requirements plans; perform compatibility and safety certification analysis; develop and manage master certification web-based database/list --- Manage testing in support of nuclear certification; manage and maintain nuclear hardness database; conduct special safety studies, nuclear weapon storage and maintenance facilities assessments, and weapons safety assessments for alterations, modifications, and limited life component replacements --- Provide technical support to and administer the various weapon system Project Officer's Groups; support technical order management; perform weapon system software and hardware analysis; provide logistics analysis; revise and verify nuclear weapons loading, delivery, warhead mate and demate, and explosive ordnance disposal (EOD) technical orders; provide technical support to DoD/DOE agencies on EOD issues.</p>		
Project 4236	Page 5 of 22 Pages	Exhibit R-2A (PE 0604222F)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)							DATE February 2002																																							
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604222F Nuclear Weapons Support			PROJECT 4236																																							
<p>(U) <u>A. Mission Description Continued</u></p> <p>(U) <u>FY 2003 (\$ in Thousands) Continued</u></p> <p>(U) \$1,695 --- Provide technical expertise for continued nuclear weapons integration of US and Non-US aircraft systems. Nuclear Weapons Program Support</p> <p>(U) \$300 --- Provide technical expertise to support development, fielding and updates of nuclear weapon military characteristics (MCs) and stockpile-to-target sequence (STS) documents; document and support all weapons safety analyses, program actions, and agreements; update the Nuclear Weapon Management System and Knowledge Base System; conduct special studies on stockpile related matters --- Conduct development flight testing for weapon modification programs --- Provide technical analysis to support life extension options for B83, B61, W80 and ICBM warheads, inactive stockpile issues, use control, long term storage, and dismantlement issues to weapon Lead Project Officers and Headquarters, USAF. Counterproliferation Support</p> <p>(U) \$2,115 --- Provide technical support and engineering for joint DoD/DOE Acquisition Phase 6.2 of the Robust Nuclear Earth Penetrator (RNEP) effort; perform analysis of AF/DOE proposed alterations/modifications to the enduring stockpile --- Lead the development of new analytical methodologies that support these assessments --- Provide support for counterproliferation operational and assessment efforts other than ADW effort. Total</p> <p>(U) <u>B. Project Change Summary</u> No significant changes.</p> <p>(U) <u>C. Other Program Funding Summary (\$ in Thousands)</u></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:15%;"></th> <th style="width:10%;"><u>FY 2001</u></th> <th style="width:10%;"><u>FY 2002</u></th> <th style="width:10%;"><u>FY 2003</u></th> <th style="width:10%;"><u>FY 2004</u></th> <th style="width:10%;"><u>FY 2005</u></th> <th style="width:10%;"><u>FY 2006</u></th> <th style="width:10%;"><u>FY 2007</u></th> <th style="width:10%;"><u>Cost to</u></th> <th style="width:10%;"><u>Total Cost</u></th> </tr> <tr> <td></td> <td align="center"><u>Actual</u></td> <td align="center"><u>Estimate</u></td> <td align="center"><u>Estimate</u></td> <td align="center"><u>Estimate</u></td> <td align="center"><u>Estimate</u></td> <td align="center"><u>Estimate</u></td> <td align="center"><u>Estimate</u></td> <td align="center"><u>Complete</u></td> <td></td> </tr> </thead> <tbody> <tr> <td>(U) Not Applicable</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> </tbody> </table> <p>(U) <u>D. Acquisition Strategy</u> Multiple small, firm fixed price contracts for contractors and MIPRs to government labs for technical analyses and technical support in safety, operations and counterproliferation assessments.</p> <p>(U) <u>E. Schedule Profile</u></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:50%;"></th> <th style="width:25%;"><u>FY 2001</u></th> <th style="width:25%;"><u>FY 2002</u></th> <th style="width:25%;"><u>FY 2003</u></th> </tr> </thead> <tbody> <tr> <td>Project 4236</td> <td></td><td></td><td></td> </tr> </tbody> </table>										<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>		<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>		(U) Not Applicable											<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	Project 4236			
	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>																																					
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Project 4236																																														
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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)										DATE February 2002		
BUDGET ACTIVITY					PE NUMBER AND TITLE					PROJECT		
05 - Engineering and Manufacturing Development					0604222F Nuclear Weapons Support					4236		
(U) <u>E. Schedule Profile Continued</u>												
		<u>FY 2001</u>				<u>FY 2002</u>				<u>FY 2003</u>		
	1	2	3	4	1	2	3	4	1	2	3	4
(U) Nuc Wpm Mgmt Sys/data management	*	*	*	*	*	X	X	X	X	X	X	X
(U) B61 ALT 356 Flight Testing						X	X					
* - Completed Event X - Planned Event												
Project 4236			Page 7 of 22 Pages					Exhibit R-2A (PE 0604222F)				

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2002				
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604222F Nuclear Weapons Support				PROJECT 4236			
(U) A. Project Cost Breakdown (\$ in Thousands)											
						<u>FY 2001</u>		<u>FY 2002</u>		<u>FY 2003</u>	
(U)	Contractor Engineering Support					976		1,813		1,765	
(U)	Development Flight Test Support					250		300		350	
(U)	Total					1,226		2,113		2,115	
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)											
(U) Performing Organizations:											
	<u>Contractor or Government Performing Activity</u>	<u>Contract Method/Type or Funding Vehicle</u>	<u>Award or Obligation Date</u>	<u>Performing Activity EAC</u>	<u>Project Office EAC</u>	<u>Total Prior to FY 2001</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Product Development Organizations</u>										
	Multiple (Orion International, FFP ITT Systems, & Albuquerque Logistics)		2QFY01	N/A	N/A	1,026	676	1,493	1,435	Continuing	TBD
	<u>Support and Management Organizations</u>										
	ANSER	FFP	Annual	N/A	N/A		300	320	330	Continuing	TBD
	<u>Test and Evaluation Organizations</u>										
	Various AFMC Test Centers	MIPR	2QFY01	N/A	N/A	710	250	300	350	Continuing	TBD
(U) Government Furnished Property:											
	<u>Item Description</u>	<u>Contract Method/Type or Funding Vehicle</u>	<u>Award or Obligation Date</u>	<u>Delivery Date</u>		<u>Total Prior to FY 2001</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Product Development Property</u>										
	None										
	<u>Support and Management Property</u>										
	None										
Project 4236				Page 8 of 22 Pages				Exhibit R-3 (PE 0604222F)			

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE	
05 - Engineering and Manufacturing Development		February 2002	
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT	
	0604222F Nuclear Weapons Support	4236	
(U) <u>Government Furnished Property Continued:</u>			
<u>Test and Evaluation Property</u>			
None			
	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>
	<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>
		<u>Budget</u>	<u>Budget</u>
		<u>FY 2003</u>	<u>Budget to</u>
		<u>Complete</u>	<u>Total</u>
<u>Subtotals</u>			<u>Program</u>
Subtotal Product Development	1,026	676	1,493
Subtotal Support and Management		300	320
Subtotal Test and Evaluation	710	250	300
Total Project	1,736	1,226	2,113
			2,115
			TBD

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)								DATE February 2002		
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604222F Nuclear Weapons Support				PROJECT 4807		
COST (\$ in Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost	
4807 Agent Defeat Weapons	3,486	5,431	5,360	5,838	5,822	6,062	6,245	Continuing		
<p>(U) <u>A. Mission Description</u> Perform engineering analyses for the Agent Defeat Weapon (ADW) to prepare for entry into acquisition. Plan for and transition ADW concepts into either an acquisition or advanced concept technology demonstration (ACTD) program to include identifying funding, technical, schedule, and programmatic content. Prepare the necessary acquisition-related documentation to support program and/or decision reviews. Develop and evaluate software tools required for the employment these weapons.</p> <p>(U) <u>FY 2001 (\$ in Thousands)</u></p> <p>(U) \$2,028 Agent Defeat Weapon (ADW). Improved the fidelity of the Simulated Environment and Response Execution Nesting Tool (SERPENT) for incorporation in the USAF/DoD Joint Targeting Toolbox as the Agent Defeat Weapon target-planning tool; completed Engineering/Engagement analysis, including excursion and intelligence uncertainty assessments; completed concept of operations (CONOPS), campaign analysis, and high fidelity life cycle cost estimates; and supported Counterforce Workshop to address ADW policy issues.</p> <p>(U) \$1,458 System Program Office Efforts. Stood up the initial cadre for the ADW System Program Office (SPO) and began activities for Milestone A decision and new program start. Includes mandatory documentation preparation and assessments to include: the Request for Proposal (RFP) - SPO; ORD - HQ ACC/SPO; Test Evaluation Master Plan (TEMP) - SPO; System Engineering Master Plan (SEMP)- SPO; System Threat Assessment (STA) - 497IG; C4ISP - 497IG; SPO High Fidelity Life Cycle Cost (LCC) Estimates; and Program Milestone I acquisition decision review requirements. Accomplished documentation preparation and assistance in preparation for Milestone I Decision (CPIPT/AFROC)</p> <p>(U) \$3,486 Total</p> <p>(U) <u>FY 2002 (\$ in Thousands)</u></p> <p>(U) \$2,970 Continue Agent Defeat Weapon (ADW) Soft/Fixed Target Acquisition activity. Develop collateral effects prediction tool in support of Surface Target Ordnance Package (STOP) Advanced Concept Technology Demonstration (ACTD). STOP is the only alternative for fixed/soft targets in the ADW analysis of alternatives (AoA) which significantly increases lethality and decreases collateral effects compared to legacy weapons</p> <p>(U) \$2,461 Continue Agent Defeat Weapon (ADW) Hard Target Acquisition activity. Complete ADW Phase 0 AoA activities to include providing recommendation to AFROC and finish AoA Final Report. Develop ADW Hard Target Acquisition Strategy to include starting DOE phase I</p>										
Project 4807	Page 10 of 22 Pages								Exhibit R-2A (PE 0604222F)	

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)		DATE February 2002																														
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604222F Nuclear Weapons Support	PROJECT 4807																														
<p>(U) <u>A. Mission Description Continued</u></p> <p>(U) <u>FY 2002 (\$ in Thousands) Continued</u></p> <p style="padding-left: 40px;">Development and/or DoD Pre-Milestone B Risk Reduction for ADW Hard Target alternative(s). Efforts primarily address payload, payload ejection, and fuzing. Perform Empirical Lethality Model (ELM)-related testing to continue increase its fidelity in areas as related to legacy weapons and ADW AoA recommended alternatives. Release Beta version of Simulated Environment and Response Execution Nesting Tool (SERPENT). Continue to improve fidelity of SERPENT and perform preliminary VV&A for incorporation in the USAF/DoD Joint Targeting Toolbox as the ADW target-planning tool. Continue to Provide Support to Infinite Justice.</p> <p>(U) \$5,431 Total</p> <p>(U) <u>FY 2003 (\$ in Thousands)</u></p> <p>(U) \$2,900 Continue development of acquisition strategy of Agent Defeat Weapon (ADW) Soft/Fixed Target capability with design/development of the Surface Target Ordnance Package (STOP) H/W Advanced Concept Technology Demonstration (ACTD).</p> <p>(U) \$2,460 Continue development of ADW Hard Target Acquisition Strategy to include:</p> <p style="padding-left: 40px;">--- DoD/DOE acquisition efforts to include joint DoD/DOE Phase 2/2A and/or DoD Pre-Milestone B Risk Reduction for ADW Hard Target alternative(s).</p> <p style="padding-left: 40px;">--- Continue to improve fidelity of Simulated Environment and Response Execution Nesting Tool (SERPENT) and perform VV&A for incorporation in the USAF/DoD Joint Targeting Toolbox as the ADW target-planning tool.</p> <p>(U) \$5,360 Total</p> <p>(U) <u>B. Project Change Summary</u></p> <p style="padding-left: 40px;">Due to continued analytical assessments to address uncertainty issues in the AoA and decision by the ADW Executive Working Group to recommend designation of the STOP program as an ACTD, Milestone I decision will be delayed until late FY 03.</p> <p>(U) <u>C. Other Program Funding Summary (\$ in Thousands)</u></p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 15%;"></th> <th style="width: 10%; text-align: center;"><u>FY 2001</u></th> <th style="width: 10%; text-align: center;"><u>FY 2002</u></th> <th style="width: 10%; text-align: center;"><u>FY 2003</u></th> <th style="width: 10%; text-align: center;"><u>FY 2004</u></th> <th style="width: 10%; text-align: center;"><u>FY 2005</u></th> <th style="width: 10%; text-align: center;"><u>FY 2006</u></th> <th style="width: 10%; text-align: center;"><u>FY 2007</u></th> <th style="width: 10%; text-align: center;"><u>Cost to</u></th> <th style="width: 10%; text-align: center;"><u>Total Cost</u></th> </tr> <tr> <td></td> <td style="text-align: center;"><u>Actual</u></td> <td style="text-align: center;"><u>Estimate</u></td> <td style="text-align: center;"><u>Complete</u></td> <td></td> </tr> </thead> <tbody> <tr> <td>(U) N/A</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <p>(U) <u>D. Acquisition Strategy</u></p> <p style="padding-left: 40px;">ADW Phase 0/I activities are using firm/fixed price contracts and MIPRs to government labs for advanced analyses and development of selected Agent Defeat concepts.</p>				<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>		<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>		(U) N/A									
	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>																							
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>																								
(U) N/A																																
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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)										DATE February 2002				
BUDGET ACTIVITY					PE NUMBER AND TITLE					PROJECT				
05 - Engineering and Manufacturing Development					0604222F Nuclear Weapons Support					4807				
(U) E. Schedule Profile														
		<u>FY 2001</u>					<u>FY 2002</u>					<u>FY 2003</u>		
		1	2	3	4	1	2	3	4	1	2	3	4	
(U)	End ADW Phase 0 AoA						X							
(U)	Begin/Complete ADW acquisition documentation	*								X				
(U)	Begin STOP ACTD Activities								X					
(U)	ADW Milestone I												X	
(U)	-- Begin ADW Phase I												X	
	* - Completed Event X - Planned Event													

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)								DATE February 2002			
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604222F Nuclear Weapons Support			PROJECT 4807			
(U) <u>A. Project Cost Breakdown (\$ in Thousands)</u>											
						<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>			
(U)	Hardware Development					1,350	3,238	2,900			
(U)	Software Development					1,235	1,040	1,300			
(U)	Program Management Support					800	1,040	990			
(U)	Miscellaneous					101	113	170			
(U)	Total					3,486	5,431	5,360			
(U) <u>B. Budget Acquisition History and Planning Information (\$ in Thousands)</u>											
(U) <u>Performing Organizations:</u>											
	<u>Contractor or Government Performing Activity</u>	<u>Contract Method/Type or Funding Vehicle</u>	<u>Award or Obligation Date</u>	<u>Performing Activity EAC</u>	<u>Project Office EAC</u>	<u>Total Prior to FY 2001</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Product Development Organizations</u>											
	Air Armament Center (AAC/WMX)	MIPR	2QFY02	4,970	4,970		2,070	2,900		4,970	
	Multiple (ITT Systems, Orion International, & various DOE National Laboratories)	FFP/MIPR	2QFY02	N/A	N/A	2,450	3,186	2,469	1,473	Continuing	TBD
<u>Support and Management Organizations</u>											
	Orion International	FFP	2QFY02	N/A	N/A	300	300	892	987	Continuing	TBD
<u>Test and Evaluation Organizations</u>											
	TBD	TBD	TBD	TBD	TBD					Continuing	TBD
(U) <u>Government Furnished Property:</u>											
	<u>Item Description</u>	<u>Contract Method/Type or Funding Vehicle</u>	<u>Award or Obligation Date</u>	<u>Delivery Date</u>		<u>Total Prior to FY 2001</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	Project 4807										

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2002			
BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT		
05 - Engineering and Manufacturing Development				0604222F Nuclear Weapons Support				4807		
(U) <u>Government Furnished Property Continued:</u>										
	<u>Contract</u>	<u>Award or</u>								
<u>Item</u>	<u>Method/Type</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Delivery</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Description</u>	<u>Vehicle</u>	<u>Date</u>	<u>Date</u>	<u>Date</u>	<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Complete</u>	<u>Program</u>
<u>Product Development Property</u>										
None										
<u>Support and Management Property</u>										
None										
<u>Test and Evaluation Property</u>										
None										
					<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Subtotals</u>					<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Complete</u>	<u>Program</u>
Subtotal Product Development					2,450	3,186	4,539	4,373	TBD	TBD
Subtotal Support and Management					300	300	892	987	TBD	TBD
Subtotal Test and Evaluation									TBD	TBD
Total Project					2,750	3,486	5,431	5,360	TBD	TBD

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)								DATE February 2002	
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604222F Nuclear Weapons Support				PROJECT 5708	
COST (\$ in Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
5708 Nuclear Weapons Support	4,885	5,446	6,152	6,330	6,530	6,780	7,012	Continuing	0
<p>(U) A. Mission Description Fund Air Force Nuclear Weapons Product Support Center (NWPSC) and the Air Force Nuclear Weapons & Counterproliferation Agency (AFNWCA) civilians at Kirtland AFB, New Mexico providing technical and engineering support for all USAF nuclear weapon systems and counterproliferation technical efforts. Conduct studies and analysis for nuclear capable aircraft and missile systems to include ground and maintenance support equipment required to meet certification, safety, security, operational, and other requirements. Administer oversight activities such as the Project Officers Group function for all Air Force nuclear weapon systems. Interface with the Department of Energy and their national laboratories to accomplish weapon sustainment/life extension programs.</p> <p>(U) FY 2001 (\$ in Thousands)</p> <p>(U) \$1,303 Nuclear Aircraft System Support. Conducted Nuclear Aircraft Weapon System Surveillance testing: F-16 Block 30/40/50 Mid Life Upgrade Module 2A; F-15E, and PA-200; managed the B-52H, F-15E, B-2A, F-16C/D, and PA-200 Project Officer Groups (POGs); prepared and Issued Aircraft Nuclear Compatibility Certification Statements for F-15, F-16, B-2A, B-52 and PA-200; supported Strike Aircraft Operational Safety Review (OSR); provided key member and technical advisor to AF Vice Chief of Staff-directed Nuclear Certification IPT; supported Mid-Life upgrade for F-16 aircraft; provided technical support to three different aircraft Product Improvement Working Groups; participated in four all-command reviews of weapons loading manuals; supported flight testing for weapons modifications and development activities; provided test support for Storage Blast & Effects Testing & Analysis (SBETA) , Weapon Maintenance Truck (WMT) Modification Evaluation, replacement MB-4 Tow Vehicle Testing, and WS3 Sustainment Engineering Modification (Nuclear Certification).</p> <p>(U) \$995 Nuclear Ground-Launched Missile (ICBM) Support. Conducted independent safety analysis to support additional Nuclear Weapons System Safety Group (NWSSG) activities for Two Person Control requirements for the Airborne Launch Control System (ALCS) at dispersed locations; coordinated/implemented new AF Unsatisfactory Report (UR) system to be compatible with the WEURS database maintained by Sandia National Laboratories, requiring our coordination with Air Force Units, DTRA, and SNL; supported W62 and W78 ICBM Warhead Maintenance Evaluations; cataloging Management Codes identified by HQ AFMC/LGI; and completed Pool Fire Analysis for Limited Life Component Exchange Warhead Maintenance Assessment.</p> <p>(U) \$895 Nuclear Weapons/Systems Assessments. Initiated Air Force Nuclear Weapon Depot Operational Risk Management Assessment; completed Kirtland Underground Munitions Maintenance Storage Complex (KUMMSC) Blast/Security Door Hinge Reliability Analysis and the KUMMSC Recapture Analysis; chaired and supported B61 Safety Subgroup.</p>									
Project 5708			Page 15 of 22 Pages				Exhibit R-2A (PE 0604222F)		

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)		DATE
		February 2002
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
05 - Engineering and Manufacturing Development	0604222F Nuclear Weapons Support	5708
(U) <u>A. Mission Description Continued</u>		
(U) <u>FY 2001 (\$ in Thousands) Continued</u>		
(U) \$1,140	Nuclear Weapons Program Support. As the AF Nuclear Weapons Center of Expertise, the AF POGs accomplished nuclear weapon safety, reliability, mission analysis, compatibility studies, and actions supporting management of the AF nuclear weapon stockpile. Weapon use control analyses, environmental studies, intrinsic radiation studies, and life extension programs for the B83, W78, B61, W80, and W87 were accomplished. Alt 355 (Gas Transfer System) for the B83 completed Phase 6.3; Alt 354 (fin kit) for the B61 is in full production (Phase 6.6); B61 Alt 356 (Spin Rocket) and Alt 357 (Canned Subassembly) are in progress; and Alt 351 for the W78 is proceeding. Flight testing for Alt 356 was successfully completed. The final Design Review and Acceptance Group (DRAAG) decision accepting modifications to the W87 warhead were approved. The W80 Life Extension Program (LEP) is continuing in Phase 6.3. Annual certification of the AF nuclear stockpile has been successfully accomplished.	
(U) \$552	Counterproliferation Assessments. Provided program guidance, analysis and expertise in the evaluation of nuclear, conventional and advanced weapon technologies and CP-related technologies. Supported Surface Target Ordnance Package (STOP) Advanced Technology Demonstration (ATD) effort and ACTD planning, JFCOM WMD counterforce exercise, Military Operations Research Society's (MORS) Chemical and Biological (CBW) Workshop and Weapons of Mass Destruction (WMD) Full Spectrum Defeat workshops. Led the Nuclear Weapons Council directed Nuclear Program Review regarding Hard and Deeply Buried Target Defeat capabilities.	
(U) \$4,885	Total	
(U) <u>FY 2002 (\$ in Thousands)</u>		
(U) \$1,381	Nuclear Aircraft System Support. Continue FY 2001 efforts to include: <ul style="list-style-type: none"> -- Support of the US Strategic Command's nuclear safe escape effort; -- Update/expand nuclear hardness database; conduct nuclear aircraft weapon system surveillance test programs; -- Provide technical support for the B-52H and Long-term Storage Operational Safety Reviews (OSRs) and the NWSSG Special Safety Study for the C-130J aircraft; -- Complete independent technical nuclear safety analysis for certification of the C-130J aircraft; -- Continue support for certification of ejector rack cartridges, aircraft nuclear weapon test sets and support equipment, and development of the common COLT/COAST test set; -- Provide nuclear surety and compatibility requirements documents for all USAF nuclear capable aircraft weapon systems; -- Manage the B-52H, F-15E, B-2A, F-16, and PA-200 POGs; -- Perform independent nuclear safety design evaluation and certification of nuclear weapon system modifications; 	
Project 5708	Page 16 of 22 Pages	Exhibit R-2A (PE 0604222F)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)		DATE February 2002
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
05 - Engineering and Manufacturing Development	0604222F Nuclear Weapons Support	5708
(U) <u>A. Mission Description Continued</u>		
(U) <u>FY 2002 (\$ in Thousands) Continued</u>		
	-- Chair Technical Order review, validation/verification, and technical content conferences; -- Publish/distribute general nuclear weapons technical guidance through the JNWPS; -- Furnish specific guidance to MAJCOMs on Explosive Ordnance Disposal and issues affected by systems hardware/software changes; -- Provide administrative/technical oversight and review of the UR system.	
(U) \$1,109	Nuclear Ground-Launched Missile (ICBM) Support. Continue FY 2001 level of effort: provide nuclear surety design criteria, standards, specifications, and related requirements documents for all USAF ground-launched missile systems; provide nuclear surety design guidance to ICBM program office/contractors for weapon system modifications and upgrade programs, perform independent nuclear surety analyses for nuclear safety design certification of weapon system modifications; provide nuclear certification support to HQ AFSC/SEW and the ICBM SPO; provide technical support required by NWSSG action items; support Peacekeeper Weapon System nuclear surety activities (either life extension programs or deactivation activities); and provide member to the ICBM Nuclear Surety Working Group, unauthorized launch studies, and special security working groups.	
(U) \$921	Nuclear Weapons/Systems Assessments. Continue FY 2001 efforts to include: -- Continue application of joint DoD/DOE nuclear surety assessment methodology to abnormal nuclear environment analyses; -- Chair/manage the Safety Subgroup of the B61 Project Officers Group; -- Conduct safety assessment of warhead maintenance operation in AF facilities; -- Provide technical advisors and the AFMC voting member Nuclear Weapons Depot Maintenance and Storage Operations NWSSG Special Safety Studies; -- Conduct fault tree analyses of nuclear weapons and weapon systems; -- Evaluate safety implications of modifications of Air Force maintenance and storage facilities; and -- Provide other assessments as required.	
(U) \$1,326	Nuclear Weapons Program Support. Continue FY 2001 efforts to include: -- Accomplish nuclear weapon safety, reliability, mission analysis and compatibility studies; -- Support USAF nuclear weapon stockpile activities, weapon use control analyses, and environmental and intrinsic radiation studies; -- Continue to develop, plan, analyze, schedule and execute nuclear weapon life extension programs for B61, B83, W80 and ICBM warheads; and -- Continue support to USAF, DoD and other agencies in all facets of the nuclear arsenal.	
(U) \$709	Counterproliferation Assessments. Continue FY 2001 efforts to include:	
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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)		DATE
		February 2002
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
05 - Engineering and Manufacturing Development	0604222F Nuclear Weapons Support	5708
(U) <u>A. Mission Description Continued</u>		
(U) <u>FY 2002 (\$ in Thousands) Continued</u>		
	- Provide technical guidance, analysis and support for the ADW Phase 0 effort and counterproliferation (CP) related efforts; -- Provide program guidance, analysis and expertise in the evaluation of nuclear, conventional and advanced weapon technologies and CP related technologies; -- Lead the joint DoD/DOE Acquisition Phase 6.2/6.2A for the Robust Nuclear Earth Penetrator (RNEP) effort.	
(U) \$5,446	Total	
(U) <u>FY 2003 (\$ in Thousands)</u>		
(U) \$1,862	Nuclear Aircraft System Support. Continue FY 2002 efforts to include: --- Support the US Strategic Command's nuclear safe escape effort; update/expand nuclear hardness databases; conduct nuclear aircraft weapon system surveillance test programs; and support Special Safety Studies --- Complete independent technical nuclear safety analysis for certification of the C-130J aircraft and WS3 System Sustainment Modifications --- Continue support for aircraft nuclear weapon test sets and support equipment; provide nuclear surety and compatibility requirements documents for all USAF nuclear capable aircraft weapon systems --- Manage the B-52H, F-15E, B-2A, F-16, and PA-200 Project Officers Groups (POGs); perform independent engineering evaluations for nuclear safety design certification of nuclear weapon system modifications and nuclear weapon compatibility certification --- Administer technical order review and validation/verification process; update/publish general nuclear weapons technical guidance through the JNWPS --- Furnish specific guidance to major commands (MAJCOMs) on explosive ordnance disposal and issues affected by systems hardware/software changes --- Provide administrative/technical oversight and review of the unsatisfactory report (UR) system; perform nuclear certification oversight functions; and develop/maintain web-based master certification database/list.	
(U) \$1,576	Nuclear Ground-Launched Missile/Intercontinental Ballistic Missile (ICBM) Support. Continue FY 2002 efforts to include: --- Provide nuclear surety design criteria, standards, specifications, and related requirements documents for all USAF ground-launched missile systems; provide nuclear surety design guidance to ICBM program office/contractors for weapon system modifications and upgrade programs; perform independent nuclear surety analyses for nuclear safety design certification of weapon system modifications; --- Provide technical support for the ALCS OSR and NWSSG Special Safety Studies; complete independent technical nuclear safety analysis for certification of the C-130J aircraft and WS3 System Sustainment Modifications and provide nuclear certification support to HQ AFSC/SEW	
Project 5708	Page 18 of 22 Pages	Exhibit R-2A (PE 0604222F)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)		DATE
		February 2002
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
05 - Engineering and Manufacturing Development	0604222F Nuclear Weapons Support	5708
(U) <u>A. Mission Description Continued</u>		
(U) <u>FY 2003 (\$ in Thousands) Continued</u>		
	and the ICBM SPO	
	--- Provide technical support required by NWSSG action items; support Peacekeeper Weapon System nuclear surety activities (either life extension programs or deactivation activities); participate in the ICBM Nuclear Surety Working Group, unauthorized launch studies, and special security working groups	
	--- Perform nuclear certification oversight functions; and develop/maintain web-based master certification database/list.	
(U) \$519	Nuclear Weapons/Systems Assessments. Continue FY 2002 efforts to include:	
	--- Continue application of joint DoD/DOE nuclear surety assessment methodology to abnormal nuclear environment analyses	
	--- Chair/manage the Safety Subgroup of the B61 Project Officers Group; conduct safety assessment of warhead maintenance operation in AF facilities	
	--- Participate in and provide technical support to the AFMC voting member Nuclear Weapons Depot Maintenance and Storage Operations	
	NWSSG Special Safety Studies	
	--- Conduct fault tree analyses of nuclear weapons and weapon systems; evaluate safety implications of modifications of Air Force storage and maintenance facilities; and provide other assessments as required.	
(U) \$1,547	Nuclear Weapons Program Support. Continue FY 2002 efforts to include:	
	--- Accomplish nuclear weapon safety, reliability, mission analysis and compatibility studies; support USAF nuclear weapon stockpile activities, weapon use control analyses, and environmental and intrinsic radiation studies	
	--- Continue to develop, plan, analyze, schedule and execute nuclear weapon life extension programs for B61, B83, W80 and ICBM warheads; and continue support to USAF, DoD and other agencies in all facets of the nuclear arsenal.	
(U) \$648	Counterproliferation Assessments. Continue FY 2002 efforts to include:	
	--- Provide technical guidance, analysis and support for the agent defeat weapon (ADW) acquisition efforts	
	--- Provide counterproliferation-related analyses, expertise and program guidance in the evaluation of nuclear, conventional and advanced weapon technologies to include joint DoD/DOE Acquisition Phase 6.2/6.2A efforts for the Robust Nuclear Earth Penetrator (RNEP).	
(U) \$6,152	Total	
(U) <u>B. Project Change Summary</u>		
	No significant changes.	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)							DATE		
BUDGET ACTIVITY							PROJECT		
05 - Engineering and Manufacturing Development							0604222F Nuclear Weapons Support		
							5708		
(U) C. Other Program Funding Summary (\$ in Thousands)									
	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Not Applicable									
(U) D. Acquisition Strategy									
RDT&E funds primarily provide for Air Force technical civilian personnel providing nuclear weapon and weapon system management and development and CP related nuclear, conventional, advanced weapon technology, ISR and BDA guidance, direction, analysis and development. These scientists and engineers interface with Headquarters USAF, Air Force nuclear weapon System Program Offices, operational commands and the Department of Energy, performing engineering development and analysis to ensure continued and improved weapon system safety, security, reliability and compatibility and managing/developing counterproliferation counterforce capabilities.									
(U) E. Schedule Profile									
		<u>FY 2001</u>			<u>FY 2002</u>		<u>FY 2003</u>		
		1	2	3	4	1	2	3	4
(U) B61 ALT 357 Phase 6.2 Study Start		*							
(U) B61 ALT 357 Phase 6.2 Study Complete						X			
(U) W80 Life Extension Phase 6.3 Start		*							
(U) W80 Life Extension Phase 6.3 Complete							X		
(U) B83 ALT 355 Phase 6.6 Approval					*				
(U) B61 ALT 354 Phase 6.6 Approval				*					
(U) B61 ALT 356 Phase 6.2/6.3 Study Start					*				
(U) RNEP Phase 6.2 Study Start						X			
(U) Annual Certification				*			X		X
* - Completed Event X - Planned Event									

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2002				
BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT			
05 - Engineering and Manufacturing Development				0604222F Nuclear Weapons Support				5708			
(U) A. Project Cost Breakdown (\$ in Thousands)											
						<u>FY 2001</u>		<u>FY 2002</u>		<u>FY 2003</u>	
(U)	Program Management Personnel					250		255		286	
(U)	Research Personnel					3,220		3,350		3,846	
(U)	Travel					300		369		420	
(U)	Training Development					110		127		120	
(U)	Research Support Equipment Acquisition					200		194		200	
(U)	Contract Services Support					250		262		340	
(U)	Miscellaneous					555		889		940	
(U)	Total					4,885		5,446		6,152	
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)											
(U) Performing Organizations:											
<u>Contractor or Government</u>	<u>Contract Method/Type</u>	<u>Award or Obligation Date</u>	<u>Performing Activity EAC</u>	<u>Project Office EAC</u>	<u>Total Prior to FY 2001</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget to Complete</u>	<u>Total Program</u>	
<u>Product Development Organizations</u>											
Air Armament Center/Nuclear Weapons Product Support Center (NWPSC) (AAC/WN)	N/A	N/A	N/A	N/A	7,792	2,985	3,215	3,491	Continuing	TBD	
Air Force Nuclear Weapons and Counterproliferation Agency (AFNWCA)	N/A	N/A	N/A	N/A	4,520	1,650	1,969	2,321	Continuing	TBD	
<u>Support and Management Organizations</u>											
GTE Government Service Corp	FFP	1QFY01	N/A	N/A	245	250	262	340	Continuing	TBD	
<u>Test and Evaluation Organizations</u>											
None											
Project 5708				Page 21 of 22 Pages				Exhibit R-3 (PE 0604222F)			

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2002		
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604222F Nuclear Weapons Support			PROJECT 5708		
(U) Government Furnished Property:									
	<u>Contract</u>								
	<u>Method/Type</u>	<u>Award or</u>							
<u>Item</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Delivery</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Description</u>	<u>Vehicle</u>	<u>Date</u>	<u>Date</u>	<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Complete</u>	<u>Program</u>
<u>Product Development Property</u>									
None									
<u>Support and Management Property</u>									
None									
<u>Test and Evaluation Property</u>									
None									
				<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Subtotals</u>				<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Complete</u>	<u>Program</u>
Subtotal Product Development				12,312	4,635	5,184	5,812	TBD	TBD
Subtotal Support and Management				245	250	262	340	TBD	TBD
Subtotal Test and Evaluation									
Total Project				12,557	4,885	5,446	6,152	TBD	TBD

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 2002
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BUDGET ACTIVITY 05 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604226F B-1B	PROJECT 4596
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COST (\$ in Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
4596 Conventional Mission Upgrades	148,097	150,799	160,688	90,637	80,385	83,922	53,620	52,500	1,972,350
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0

(U) **A. Mission Description**
 This program provides RDT&E funding for the B-1B Conventional Mission Upgrade Program (CMUP). Funding in the FYDP includes integration of advanced conventional weapons including variants of the Joint Direct Attack Munition (JDAM), Wind Corrected Munitions Dispenser (WCMD), Joint Stand-Off Weapon (JSOW), and Joint Air to Surface Stand-Off Missile (JASSM). Funding for upgrades to the Electronic Countermeasures (ECM) suite is also in the FYDP. Additional efforts include an upgrade to the avionics computers to enable simultaneous carriage of multiple weapon types, provide growth capability, and reduce support costs; development of the B-1B mission planning interface to the Air Force Mission Support System (AFMSS); and upgrades to the B-1B training systems to keep them current with the aircraft's configuration. The development efforts to improve the display of threat data and situational awareness (S/A) information (to include datalink) to the aircrew; to record mission information; to design fixes that address near term reliability, maintainability, diminishing manufacturing sources (DMS), and performance deficiencies on selected line replaceable units (LRUs) of the ALQ-161A defensive system; and to address reliability and DMS deficiencies along with performance improvements in the radar subsystem are also included. Funding is also provided for engineering and planning studies for potential future weapon system enhancements (weapons, sensors, and avionics); and weapon system operational/safety, supportability, maintainability, reliability, and Total Ownership Cost (TOC) support improvements.

- (U) **FY 2001 (\$ in Thousands)**
- (U) \$98,637 Continued Conventional Mission Upgrade Program (CMUP) contractual efforts
- (U) \$453 Government Furnished Equipment (GFE)
- (U) \$37,588 Government flight test, Live Fire Test & Evaluation and General Test Support
- (U) \$4,943 Advisory and Assistance Services (A&AS)
- (U) \$2,950 Modeling & Simulation / Studies & Analyses
- (U) \$3,526 Program Management & Administration (PMA)
- (U) \$148,097 Total

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE			
BUDGET ACTIVITY		PE NUMBER AND TITLE		PROJECT	
05 - Engineering and Manufacturing Development		0604226F B-1B		4596	
(U) <u>A. Mission Description Continued</u>					
(U) <u>FY 2002 (\$ in Thousands)</u>					
(U)	\$110,269	Continued Conventional Mission Upgrade Program (CMUP) contractual efforts			
(U)	\$572	Government Furnished Equipment (GFE)			
(U)	\$29,466	Government flight test, Live Fire Test & Evaluation and General Test Support			
(U)	\$4,598	Advisory and Assistance Services (A&AS)			
(U)	\$2,450	Modeling & Simulation / Studies & Analyses			
(U)	\$3,444	Program Management & Administration (PMA)			
(U)	\$150,799	Total			
(U) <u>FY 2003 (\$ in Thousands)</u>					
(U)	\$134,833	Continued Conventional Mission Upgrade Program (CMUP) contractual efforts			
(U)	\$332	Government Furnished Equipment (GFE)			
(U)	\$21,538	Government flight test, Live Fire Test & Evaluation and General Test Support			
(U)	\$515	Advisory and Assistance Services (A&AS)			
(U)	\$2,770	Modeling & Simulation / Studies & Analyses			
(U)	\$700	Program Management & Administration (PMA)			
(U)	\$160,688	Total			
(U) <u>B. Budget Activity Justification</u>					
(U) The B-1 CMUP program is included in Budget Activity 5, Engineering and Manufacturing Development. The CMUP program provides new capabilities to the B-1B weapon system, including GPS, Near-Precision Weapons, enhanced computers, datalink, and upgraded ECM. These capabilities require significant software development and testing.					
(U) <u>C. Program Change Summary (\$ in Thousands)</u>					
		<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Total Cost</u>
(U)	Previous President's Budget	156,671	194,507	95,299	1,648,348
(U)	Appropriated Value	158,122	194,507		
(U)	Adjustments to Appropriated Value				
	a. Congressional/General Reductions	-1,107	-43,708		
	b. Small Business Innovative Research	-5,230			
Project 4596		Page 2 of 9 Pages		Exhibit R-2 (PE 0604226F)	

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 2002		
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604226F B-1B				PROJECT 4596		
(U) <u>C. Program Change Summary (\$ in Thousands) Continued</u>										
				<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>			<u>Total Cost</u>	
	c. Omnibus or Other Above Threshold Reprogram			-1,140						
	d. Below Threshold Reprogram			-2,205						
	e. Rescissions			-343						
(U)	Adjustments to Budget Years Since FY 2002 PBR					65,389			324,002	
(U)	Current Budget Submit/FY 2003 PBR			148,097	150,799	160,688			1,972,350	
(U) <u>Significant Program Changes:</u>										
(U) FY02: Congressional/General Reductions: -\$43.708M (-\$42.200M ANG operations; -\$1.438 Cong Act Multi Appn; -\$0.070 CGR)										
(U) FY03: \$65.389M for increased lethality, survivability, and supportability.										
(U) <u>D. Other Program Funding Summary (\$ in Thousands)</u>										
		<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Total Cost</u>	
		<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>		
(U)	Appn 10, PE 0101126F, B-1B, Aircraft Procurement BP11, Mods	48,267	36,823	98,026	134,341	102,975	132,290	130,541	434,060	1,117,323
(U)	Appn 10, PE 0101126F, B-1B, Aircraft Procurement BP16, Initial Spares	12,759	15,363	7,815	7,638	31,839	28,208	20,504	0	124,126
(U)	Appn 10, PE 0101126F, B-1B, Aircraft Procurement BP12, Common Support Equipment	1,900	20,598	18,703	34,171	38,569	18,621	5,946	0	138,508
(U)	Appn 10, PE 0101126F, B-1B, Aircraft Procurement BP13, Post Production Charges	16,500	6,400	1,969	8,932	12,916	14,071	10,434	0	71,222
(U)	Appn 10, PE 0207442F,	0	0	0	30,428	22,604	22,181	22,817	5,662	103,692
Project 4596										

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 2002	
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604226F B-1B				PROJECT 4596	
(U) D. Other Program Funding Summary (\$ in Thousands)									
	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
B-1B, EW Production (TDS/IDECM) BP11, Mods (CMUP-related only)									
(U) Appn 10, PE 0207446F, Bomber TDL Core BP11	0	0	0	0	132,099	98,840	56,709	74,700	362,348
(U) Appn 10, PE 027434F, TDL Infrastructure BP11 Related RDT&E:	0	0	0	0	0	0	8,485	34,900	43,385
(U) Program Element 0205164F, Global Positioning System (GPS)									
(U) Program Element 0207325F, Joint Air to Surface Standoff Missile (JASSM)									
(U) Program Element 0604618F/N, Joint Direct Attack Munition (JDAM)									
(U) Program Element 0604727F/N, Joint Stand-Off Weapon (JSOW)									
(U) Program Element 0604754F, Joint Tactical Information Distribution System (JTIDS)									
(U) Program Element 0604600F, Wind Corrected Munitions Dispenser (WCMD)									
(U) Program Element 0208006F, Air Force Mission Support System (AFMSS)									
(U) Program Element 0604270F, Electronic Warfare (EW) Development									
(U) Program Element 0207446F, Bomber Tactical Datalink (TDL)									
(U) Program Element 0207434F, Tactical Datalink Infrastructure (TDL)									
(U) E. Acquisition Strategy									
(U) Key elements of the overall CMUP acquisition strategy include: use of a sole source contract with a prime/integrating contractor; assignment of Total System Installed Performance Responsibility (TSIPR) to the integrating contractor; use of cost plus award fee (CPAF) development contracts; and combining developmental upgrades with software sustainment blocks to minimize the number of software releases, aircraft downtime and differences in fielded configurations.									
(U) F. Schedule Profile									
				<u>FY 2001</u>		<u>FY 2002</u>		<u>FY 2003</u>	

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE February 2002			
BUDGET ACTIVITY					PE NUMBER AND TITLE					PROJECT			
05 - Engineering and Manufacturing Development					0604226F B-1B					4596			
(U) <u>F. Schedule Profile Continued</u>													
		<u>FY 2001</u>				<u>FY 2002</u>				<u>FY 2003</u>			
	1	2	3	4	1	2	3	4	1	2	3	4	
(U)	Defensive System Upgrade Program												
(U)	T&E Milestones												
(U)	- Complete subsystem qual test												
(U)	- Flight Test Start												
(U)	- Complete DT&E												
(U)	Mission Planning System (MPS)												
(U)	T&E Milestones												
(U)	- S/W Release 2.0 Test Readiness Review/FQT												
(U)	Contract Milestones												
(U)	- S/W Release 2.02 Delivery												
(U)	Training Systems												
(U)	Acquisition Milestones												
(U)	- Complete JDAM/GPS EMD												
(U)	Weapons												
(U)	Engineering Milestones												
(U)	- JSOW/JASSM CDR												
(U)	T&E Milestones												
(U)	- Start Computer/WCMD Flight Test												
(U)	- Start JSOW/JASSM Ground Test												
(U)	- Complete Computer/WCMD DT&E												

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2002						
BUDGET ACTIVITY				PE NUMBER AND TITLE			PROJECT						
05 - Engineering and Manufacturing Development				0604226F B-1B			4596						
(U) A. Project Cost Breakdown (\$ in Thousands)													
						<u>FY 2001</u>		<u>FY 2002</u>		<u>FY 2003</u>			
(U)	CMUP contractual efforts					98,637		110,269		134,833			
(U)	Government flight test					37,588		29,466		21,538			
(U)	Government Furnished Equipment					453		572		332			
(U)	Advisory and Assistance Services (A&AS)					4,943		4,598		515			
(U)	Modeling & Simulation / Studies & Analyses					2,950		2,450		2,770			
(U)	Program Management & Administration (PMA)					3,526		3,444		700			
(U)	Total					148,097		150,799		160,688			
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)													
(U) Performing Organizations:													
	<u>Contractor or</u>		<u>Contract</u>										
	<u>Government</u>		<u>Method/Type</u>		<u>Award or</u>	<u>Performing</u>	<u>Project</u>						
	<u>Performing</u>		<u>or Funding</u>		<u>Obligation</u>	<u>Activity</u>	<u>Office</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>			
	<u>Activity</u>		<u>Vehicle</u>		<u>Date</u>	<u>EAC</u>	<u>EAC</u>	<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>			
									<u>FY 2003</u>	<u>Budget to</u>			
									<u>Complete</u>	<u>Total</u>			
										<u>Program</u>			
<u>Product Development Organizations</u>													
(U)	DSUP												
(U)	TBC		SS/CPAF		May 93	31,918	31,918	31,918	0	0	0	0	31,918
(U)	TBC		SS/CPAF		June 97	341,079	341,079	191,771	46,388	50,290	67,851	11,507	367,807
(U)	Mission Planning System												
(U)	Lockheed-Sanders		C/CPAF		Aug 94	545	545	545	0	0	0	0	545
(U)	Logicon		CPAF		Dec 95	54,566	54,566	47,416	3,883	1,299	3,950	1,308	57,856
(U)	Training Systems												
(U)	Lockheed-Martin		C/CPAF		Jun 94	13,284	13,284	13,284	0	0	0	0	13,284
(U)	Intelx		C/CPAF		Jun 99	34,517	34,517	18,548	9,069	800	5,900	23,985	58,302
(U)	Weapons												
(U)	TBC - CBUs		SS/CPFF		Mar 93	4,960	4,960	4,960	0	0	0	0	4,960
(U)	TBC - CBUs		SS/CPFF		Jan 94	16,314	16,314	16,314	0	0	0	0	16,314
Project 4596													
Page 6 of 9 Pages													
Exhibit R-3 (PE 0604226F)													

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE	
										February 2002	
BUDGET ACTIVITY					PE NUMBER AND TITLE					PROJECT	
05 - Engineering and Manufacturing Development					0604226F B-1B					4596	
(U) <u>Performing Organizations Continued:</u>											
<u>Product Development Organizations</u>											
(U)	TBC - FWEP	SS/T&M	Sep 98	3,866	3,866	3,866	0	0	0	0	3,866
(U)	TBC - EFX	SS/T&M	Feb 98	5,727	5,727	5,727	0	0	0	0	5,727
(U)	TBC- JDAM/GPS	SS/CPFF	Aug 93	72,223	72,223	72,223	0	0	0	0	72,223
Pre-EMD											
(U)	TBD - INS/GSS	TBD	Jan 06	49,900	49,900					49,702	49,702
(U)	TBD - RADAR	TBD	Jan 03	105,100	105,100	0	0	0	10,000	84,245	94,245
Improvements											
(U)	AIL - ALQ-161	SS/CPFF	Apr 02	27,852	27,852	0	0	1,600	11,628	11,007	24,235
R&M/DMS											
(U)	TBC - S/A	SS/CPFF	Mar 02	5,356	5,356	0	0	2,950	2,406	0	5,356
Improvements											
(U)	TBD - TSAS/AVTR	TBD	Jan 03	8,800	8,800	0	0	0	6,000	0	6,000
Improvements											
(U)	TBD - VSD	TBD	Jan 07	33,300	33,300	0	0	0	0	23,200	23,200
Improvements											
(U)	TBD - CITS/EMUX	TBD	Jan 05	44,500	44,500	0	0	0	0	29,400	29,400
R&M/DMS											
(U)	TBD -JMPS	TBD	Jan 05	18,400	18,400	0	0	0	0	18,400	18,400
Transistion											
(U)	TBD -FIDL	TBD	Jan 04	73,000	73,000	0	0	0	0	72,960	72,960
(U)	TBC- JDAM/ GPS	SS/CPAF	Mar 95	272,404	272,404	272,404	0	0	0	0	272,404
EMD											
(U)	TBC-ACBM	SS/CPAF	Mar 98	1,900	1,900	1,900	0	0	0	0	1,900
(U)	TBC-Wing Sweep	SS/T&M	Jul 97	1,089	1,089	1,089	0	0	0	0	1,089
(U)	TBC- Computer	SS/CPAF	May 96/Jan 97	265,761	265,761	172,041	19,828	21,733	3,646	0	217,248
(U)	TBC-WCMD	SS/CPAF	May 96/Jan	67,460	67,460	45,872	8,163	11,819	1,590	0	67,444

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE	
BUDGET ACTIVITY										PROJECT	
05 - Engineering and Manufacturing Development										4596	
PE NUMBER AND TITLE											
0604226F B-1B											
(U) Performing Organizations Continued:											
<u>Product Development Organizations</u>											
			97								
(U)	Lockheed-Martin - WCMD	SS/CPAF	Jan 97	1,801	1,801	801	1,000	0	0	0	1,801
(U)	TBC- JSOW/ JASSM	SS/CPAF	Mar 99	63,167	63,167	17,053	6,469	19,204	21,816	0	64,542
(U)	Lockheed- Martin - JASSM	SS/T&M	Jan 99	11,743	11,743	6,822	2,677	1,871	646	0	12,016
(U)	Raytheon -JSOW	SS/T&M	Jan 99	3,283	3,283	1,350	1,160	500	0	0	3,010
(U)	TBD - Future CMUP	TBD	TBD	300	300	0	0	100	100	100	300
Related EMD											
<u>Support and Management Organizations</u>											
(U)	A&AS	Various	Annual	38,418	38,418	24,847	4,943	4,598	515	0	34,903
(U)	Studies & Analyses / Modeling & Sim	Various	Various	28,009	28,009	22,739	2,950	2,450	2,770	1,700	32,609
(U)	Program Mgmt & Admin	Various	Various	44,296	44,296	29,598	3,526	3,444	700	0	37,268
<u>Test and Evaluation Organizations</u>											
(U) Modernization											
(U)	AFFTC	P.O.	Various							74,348	74,348
(U)	DSUP										
(U)	AFFTC	P.O.	Various	94,395	94,395	14,042	16,751	14,501	13,390	3,587	62,271
(U)	Weapons										
(U)	AFFTC	P.O.	Various	125,182	125,182	81,195	20,837	13,068	7,448	2,960	125,508
(U) Government Furnished Property:											
<u>Contract</u>											
	<u>Item</u>	<u>Method/Type</u>	<u>Award or</u>								
	<u>Description</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Delivery</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
		<u>Vehicle</u>	<u>Date</u>	<u>Date</u>	<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Complete</u>	<u>Program</u>	

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2002			
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604226F B-1B			PROJECT 4596			
(U) Government Furnished Property Continued:										
<u>Item</u>	<u>Contract</u>	<u>Method/Type</u>	<u>Award or</u>		<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Description</u>	<u>or Funding</u>	<u>Vehicle</u>	<u>Obligation</u>	<u>Delivery</u>	<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Complete</u>	<u>Program</u>
<u>Product Development Property</u>										
(U) DSUP										
(U) Various	Various	Various	Various	Various	4,069	300	500	300	0	5,169
(U) Weapons										
(U) Various	Various	Various	Various	Various	1,931	153	72	32	32	2,220
<u>Support and Management Property</u>										
<u>Test and Evaluation Property</u>										
<u>Subtotals</u>					<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
					<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Complete</u>	<u>Program</u>
Subtotal Product Development					931,904	99,090	112,738	135,865	325,846	1,605,443
Subtotal Support and Management					77,184	11,419	10,492	3,985	1,700	104,780
Subtotal Test and Evaluation					95,237	37,588	27,569	20,838	80,895	262,127
Total Project					1,104,325	148,097	150,799	160,688	408,441	1,972,350

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 2002	
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604227F Distributed Mission Training (DMT)				PROJECT 4673	
COST (\$ in Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
4673 Distributed Mission Training (DMT)	3,597	0	0	0	0	0	0	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0
<p>In FY 2002, Project Number 654673, Distributed Mission Training, PE 0604227F, Distributed Mission Training, efforts were transferred to Project Number 655012, Full Combat Mission Training, PE 0207701F, in order to consolidate accounts supporting Distributed Mission Training in to a single PE to provide for more effective program management and oversight. This is not a program termination.</p> <p>(U) A. Mission Description Distributed Mission Training (DMT) is revolutionizing aerospace team training by implementing a 'train the way we fight' philosophy -- as a team. The DMT program provides a shared synthetic environment of geographically separated aircraft simulators and will link real time to C3I assets and other battlefield systems in a synthetic battlefield environment. This will allow the Air Force to conduct mission rehearsal and combat mission training, which today can only be done to a limited extent because of constraints on flying hours, platform and airspace availability, as well as environmental constraints. DMT is funded principally with Operations and Maintenance funds. RDT&E funds support the engineering development efforts focusing on development, demonstration, and transitioning of enhancements of critical functions associated with the DMT network and linked simulators. Areas of emphasis include development and demonstration of network architectures, common databases and database interfaces, improved simulator fidelity, and integration with constructive simulations for C3I. The ultimate objective of the program is for DMT to be able to conduct full joint and combined forces mission rehearsals.</p> <p>Note: FY 02-FY07 funding transferred from PE 64227F, Distributed Mission Training, to PE 27701F, Full Combat Mission Training, to consolidate accounts supporting Distributed Mission Training in to a single PE to provide for more effective program management and oversight. This is not a program termination.</p> <p>(U) FY 2001 (\$ in Thousands)</p> <p>(U) \$1,041 Continued development, demonstration and insertion of multi-level security capability</p> <p>(U) \$1,228 Continued development, demonstration and insertion of DMT related technologies. Includes but not limited to common databases and improved image generation fidelity.</p> <p>(U) \$1,328 Continued Program office support</p> <p>(U) \$3,597 Total</p>									
Project 4673			Page 1 of 5 Pages				Exhibit R-2 (PE 0604227F)		

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 2002																																																							
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604227F Distributed Mission Training (DMT)	PROJECT 4673																																																							
<p>(U) <u>A. Mission Description Continued</u></p> <p>(U) <u>FY 2002 (\$ in Thousands)</u></p> <p>(U) \$0 No Activity</p> <p>(U) \$0 No Activity</p> <p>(U) \$0 No Activity</p> <p>(U) \$0 Total</p> <p>(U) <u>FY 2003 (\$ in Thousands)</u></p> <p>(U) \$0 No Activity</p> <p>(U) \$0 Total</p> <p>(U) <u>B. Budget Activity Justification</u> This program element is included in Budget Activity 5 - Engineering and Manufacturing Development (EMD) as it supports development, demonstration and insertion of Distributed Mission Training applications.</p> <p>(U) <u>C. Program Change Summary (\$ in Thousands)</u></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:60%;"></th> <th style="width:10%; text-align: center;"><u>FY 2001</u></th> <th style="width:10%; text-align: center;"><u>FY 2002</u></th> <th style="width:10%; text-align: center;"><u>FY 2003</u></th> <th style="width:10%; text-align: center;"><u>Total Cost</u></th> </tr> </thead> <tbody> <tr> <td>(U) Previous President's Budget</td> <td style="text-align: center;">3,782</td> <td style="text-align: center;">0</td> <td></td> <td style="text-align: center;">TBD</td> </tr> <tr> <td>(U) Appropriated Value</td> <td style="text-align: center;">3,782</td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Appropriated Value</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> a. Congressional/General Reductions</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> b. Small Business Innovative Research</td> <td style="text-align: center;">-31</td> <td></td> <td></td> <td></td> </tr> <tr> <td> c. Omnibus or Other Above Threshold Reprogram</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> d. Below Threshold Reprogram</td> <td style="text-align: center;">-120</td> <td></td> <td></td> <td></td> </tr> <tr> <td> e. Rescissions</td> <td style="text-align: center;">-34</td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Budget Years Since FY 2002 PBR</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) Current Budget Submit/FY 2003 PBR</td> <td style="text-align: center;">3,597</td> <td></td> <td></td> <td style="text-align: center;">TBD</td> </tr> </tbody> </table>				<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Total Cost</u>	(U) Previous President's Budget	3,782	0		TBD	(U) Appropriated Value	3,782				(U) Adjustments to Appropriated Value					a. Congressional/General Reductions					b. Small Business Innovative Research	-31				c. Omnibus or Other Above Threshold Reprogram					d. Below Threshold Reprogram	-120				e. Rescissions	-34				(U) Adjustments to Budget Years Since FY 2002 PBR					(U) Current Budget Submit/FY 2003 PBR	3,597			TBD
	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Total Cost</u>																																																					
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Project 4673	Page 2 of 5 Pages	Exhibit R-2 (PE 0604227F)																																																							

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 2002	
BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT	
05 - Engineering and Manufacturing Development				0604227F Distributed Mission Training (DMT)				4673	
(U) <u>C. Program Change Summary (\$ in Thousands) Continued</u>									
(U) <u>Significant Program Changes:</u>									
In FY 2002, Project Number 654673, Distributed Mission Training, PE 0604227F, Distributed Mission Training, efforts were transferred to Project Number 655012, Full Combat Mission Training, PE 0207701F, in order to consolidate accounts supporting Distributed Mission Training in to a single PE to provide for more effective program management and oversight. This is not a program termination.									
(U) <u>D. Other Program Funding Summary (\$ in Thousands)</u>									
	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) PE 0207130F, F-15 Squadrons Appropriation: O&M, AF	42,593	0	0	0	0	0	0	Continuing	TBD
(U) PE 0207417F, AWACS Squadron	3,696	0	0	0	0	0	0	Continuing	TBD
(U) Appropriation: O&M, AF (U) PE 0207133F, O&M, F-16 Squadron	18,205	0	0	0	0	0	0	Continuing	TBD
Note: FY 02 - FY 07 funding transferred to PE 27701F, Full Combat Mission Training, to consolidate accounts supporting Distributed Mission Training into a single PE to provide for more effective program management and oversight. This is not a program termination.									
(U) <u>E. Acquisition Strategy</u>									
An innovative acquisition strategy is being employed for some weapon systems in conjunction with DMT. Termed ' Commercial Training Simulation Service (CTSS)', this strategy differs significantly from previous AF simulator procurements. It shifts from government-procured simulators to a contractor-provided service. The contractor owns and provides the simulator equipment, maintains simulator concurrency with the weapons system, and has incentives to keep his equipment current with the latest simulator and network technologies. CTSS contracts are currently in place for F-15C, F-16, AWACS, and Operations and Integration.									
(U) <u>F. Schedule Profile</u>									
			<u>FY 2001</u>			<u>FY 2002</u>			<u>FY 2003</u>
			1 2 3 4			1 2 3 4			1 2 3 4
(U) AWACS ops begin: Tinker AFB, OK			X						
Project 4673			Page 3 of 5 Pages				Exhibit R-2 (PE 0604227F)		

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2002				
BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT			
05 - Engineering and Manufacturing Development				0604227F Distributed Mission Training (DMT)				4673			
(U) A. Project Cost Breakdown (\$ in Thousands)											
						<u>FY 2001</u>		<u>FY 2002</u>		<u>FY 2003</u>	
(U)	DMT Network Architecture Development					0					
(U)	Common database and interface integration					0					
(U)	Demonstration of improved simulator/network fidelity					200					
(U)	Multi-level Security					1,041		0			
(U)	Develop, demonstrate, insert DMT technology					1,028		0			
(U)	Support and management					1,328		0			
(U)	Total					3,597		0			
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)											
(U) Performing Organizations:											
	<u>Contractor or Government</u>	<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Performing Activity</u>	<u>Project Office</u>	<u>Total Prior to FY 2001</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Activity</u>	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>						
	<u>Product Development Organizations</u>										
	Training Systems Product Group	CPAF/FPAT development)	Aug 99			7,289	2,269	0		Continuing	TBD
		FFP/FPAT (for operations)									
	<u>Support and Management Organizations</u>										
	Training Systems Product Group			N/A	N/A	1,577	1,328	0		Continuing	TBD
	<u>Test and Evaluation Organizations</u>										
	Training Systems Product Group	CPAF/FPAT	Aug 99	TBD	TBD	320	0	0		Continuing	TBD
Project 4673											
Page 4 of 5 Pages											
Exhibit R-3 (PE 0604227F)											

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)				DATE February 2002		
BUDGET ACTIVITY		PE NUMBER AND TITLE			PROJECT	
05 - Engineering and Manufacturing Development		0604227F Distributed Mission Training (DMT)			4673	
		<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>
		<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Complete</u>
						<u>Total</u>
	<u>Subtotals</u>					<u>Program</u>
	Subtotal Product Development	7,289	2,269	0		TBD
	Subtotal Support and Management	1,577	1,328	0		TBD
	Subtotal Test and Evaluation	320	0	0		TBD
	Total Project	9,186	3,597	0		TBD

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 2002	
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604233F Specialized Undergraduate Pilot Training					
COST (\$ in Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	26,368	4,837	1,909	1,941	1,980	0	0	0	348,229
4102 Joint Primary Aircraft Training System (JPATS)	23,764	1,837	1,909	1,941	1,980	0	0	0	264,191
4376 T-38 Avionics Upgrade Program (AUP)	2,604	3,000	0	0	0	0	0	0	84,038
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	8

Note: The RDT&E test articles above include the JPATS test aircraft (T-1) funded with FY95 through FY01 funds and Ground Based Training System (GBTS) Aircrew Training Devices (ATD), conversion software, and Training Integration Management System (TIMS) components funded with FY97 through FY01 funds. It also includes two T-38C (AUP equipped) test aircraft and two ATDs.

(U) **A. Mission Description**
 Supports Air Education and Training Command's (AETC) implementation of Specialized Undergraduate Pilot Training (SUPT) and the Department of Defense initiative for joint pilot training. The Joint Primary Aircraft Training System (JPATS) is a joint USAF/USN venture to replace the Services' fleets of primary trainer aircraft (T-37 and T-34 respectively) and associated Ground Based Training Systems (GBTS). The Air Force is the Executive Service. The T-38 AUP is an integrated modernization of the T-38A and AT-38B cockpits to support mission ready fighter and bomber training. T-38 FY2002 funding is for software block updates driven by FAA-mandated changes, National Aerospace System (NAS) requirements, and enhancements identified during test and evaluation. Additionally, there are funds in this project for Phase I testing of propulsion enhancements for the T-38 aircraft and to update T-38 flight performance models, Technical Orders, and AUP software for both aircraft and Aircrew Training Devices for changes brought about by the T-38 Propulsion Modernization Program (PMP).

(U) **B. Budget Activity Justification**
 This program element is in Budget Activity 5, Engineering and Manufacturing Development (EMD) because it primarily involves the missionization of commercial derivative aircraft, equipment, and components.

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE			
BUDGET ACTIVITY		PE NUMBER AND TITLE			
05 - Engineering and Manufacturing Development		0604233F Specialized Undergraduate Pilot Training			
(U) <u>C. Program Change Summary (\$ in Thousands)</u>					
		<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Total Cost</u>
(U)	Previous President's Budget	23,634	4,885	1,914	345,749
(U)	Appropriated Value	23,853	4,885		
(U)	Adjustments to Appropriated Value				
	a. Congressional/General Reductions		-48		
	b. Small Business Innovative Research	-366			
	c. Omnibus or Other Above Threshold Reprogram				
	d. Below Threshold Reprogram	3,100			
	e. Rescissions	-219			
(U)	Adjustments to Budget Years Since FY 2002 PBR			-5	2,480
(U)	Current Budget Submit/FY 2003 PBR	26,368	4,837	1,909	348,229
(U)	<u>Significant Program Changes:</u>				
	FY2001 includes reprogrammings to JPATS.				

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	DATE February 2002
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BUDGET ACTIVITY 05 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604233F Specialized Undergraduate Pilot Training
	PROJECT 4102

COST (\$ in Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
4102 Joint Primary Aircraft Training System (JPATS)	23,764	1,837	1,909	1,941	1,980	0	0	0	264,191

(U) **A. Mission Description**
 The Joint Primary Aircraft Training System (JPATS) is a joint USAF/USN venture to replace the Services' fleets of primary trainer aircraft (T-37 and T-34, respectively) and associated Ground Based Training Systems (GBTS). The aircraft and GBTS will be used to train entry-level student aviators in the fundamentals of flying so they can transition into advanced training tracks leading to qualification as military pilots, navigators, and naval flight officers. The program includes the purchase of aircraft, simulators, and other associated ground-based training devices, Training Integration Management System (TIMS), instructional courseware, and logistics support.

(U) **FY 2001 (\$ in Thousands)**
 (U) \$2,687 Incorporate changes to air vehicle as a result of test findings
 (U) \$19,676 Complete GBTS development
 (U) \$1,401 Mission Support and Government Test
 (U) \$23,764 Total

(U) **FY 2002 (\$ in Thousands)**
 (U) \$1,837 Redetermination and settlement of the Manufacturing Development contract. Studies & non recurring efforts for retrofits
 (U) \$1,837 Total

(U) **FY 2003 (\$ in Thousands)**
 (U) \$1,909 Studies and non recurring efforts for retrofits
 (U) \$1,909 Total

(U) **B. Project Change Summary**
 FY2001 includes reprogrammings.

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)								DATE February 2002		
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604233F Specialized Undergraduate Pilot Training				PROJECT 4102		
(U) C. Other Program Funding Summary (\$ in Thousands)										
		<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>
		<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U)	AF RDT&E	23,764	1,837	1,909	1,941	1,980	0	0	0	264,191
(U)	Other APPN									
(U)	Aircraft Procurement, Air Force, BA-3									
(U)	JPATS	133,996	223,702	209,879	302,800	313,605	344,149	303,250	222,700	2,496,881
(U)	JPATS, BA-6	0	0	39,933	9,059	8,886	258	7,413	30,500	96,049
(U)	JPATS Mod Funding	0	200	1,969	2,022	2,074	2,130	2,185	39,600	50,180
(U)	Military Construction, Air Force									
(U)	PE 0804741F, JPATS	0	0	0	0	2,000	2,000	0	0	9,738
(U)	PE 0804744F, ENJJPT	0	0	6,000	0	0	0	0	0	6,000
(U)	RDT&E, Navy, BA-7									
(U)	PE 0603208N, Training System Aircraft, H1150, JPATS	0	0	0	0	0	0	0	0	11,581
(U)	Aircraft Procurement, Navy, BA-3									
(U)	JPATS	80,607	30,400	0	0	0	0	151,536	1,694,990	2,012,888
(U)	APN 6 Spares	0	0	0	0	0	0	10,581	32,826	43,407
(U)	Military Construction, Navy	1,500	4,100	2,000	0	11,000	13,900	0	6,200	46,900
(U) D. Acquisition Strategy										
Each acquisition was competitively awarded with the intent of maximizing the use of commercially available equipment and best commercial practices. Initially, the JPATS Program competitively awarded two contracts: a Firm Fixed Price Contractor Logistics Support (CLS) - Operations and Maintenance funds - contract and a Fixed Price Incentive Firm manufacturing development (MD)/production contract with seven options. The FY02 follow-on production contract for both the air vehicle and GBTS is Firm Fixed Price.										

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)										DATE February 2002			
BUDGET ACTIVITY					PE NUMBER AND TITLE					PROJECT			
05 - Engineering and Manufacturing Development					0604233F Specialized Undergraduate Pilot Training					4102			
(U) <u>E. Schedule Profile</u>													
		<u>FY 2001</u>				<u>FY 2002</u>				<u>FY 2003</u>			
	1	2	3	4	1	2	3	4	1	2	3	4	
(U) Multi-Service OT&E (A) Complete	*												
(U) ATD, Courseware Delivery to Randolph AFB TX	*												
(U) Planning for Rate Review		*											
(U) Begin System Level Formative Evaluation (SLFE)		*											
(U) Complete SLFE			*										
(U) Milestone III					*								
(U) TIMS Delivery to Randolph AFB								X					
(U) IOC Air Force (Moody AFB)								X					
(U) Begin System-Level Multi-Service OT&E								X					
(U) Complete System-level Multi-Service OT&E									X				
(U) Begin RM & A Verification												X	
(U) Durability & Damage Tolerance Testing Complete												X	
(U) IOC Navy (NAS Pensacola)												X	
* Denotes completed milestone													
X Denotes planned milestone													

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2002			
BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT		
05 - Engineering and Manufacturing Development				0604233F Specialized Undergraduate Pilot Training				4102		
(U) A. Project Cost Breakdown (\$ in Thousands)										
						<u>FY 2001</u>		<u>FY 2002</u>		<u>FY 2003</u>
(U)	Aircraft Missionization/Test and Evaluation					2,687		612		665
(U)	Ground Based Training System (GBTS)					19,676		1,225		1,244
(U)	Other Government Costs (OGC)					1,401		0		0
(U)	Total					23,764		1,837		1,909
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)										
(U) Performing Organizations:										
<u>Contractor or</u>	<u>Contract</u>									
<u>Government</u>	<u>Method/Type</u>	<u>Award or</u>	<u>Performing</u>	<u>Project</u>						
<u>Performing</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Activity</u>	<u>Office</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Activity</u>	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>	<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Complete</u>	<u>Program</u>
<u>Product Development Organizations</u>										
Raytheon Aircraft Company	C/FPI	5 Feb 96	220,296	220,296	110,435	2,687	0	0	0	113,122
(RAC) *										
Flight Safety Services Corp.	N/A**	26 Sep 97	N/A	N/A	88,954	19,676	0	0	0	108,630
* RAC contract Total Program includes contract value, 'to ceiling,' Engineering Change Order (ECO), and Award Fee										
RAC EAC includes subcontracted GBTS effort, which is not individually reported										
** Subcontract to RAC										
<u>Support and Management Organizations</u>										
Various	Various	Various	N/A	N/A	33,371	1,401	1,837	1,909	3,921	42,439
<u>Test and Evaluation Organizations</u>										
					<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Subtotals</u>					<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Complete</u>	<u>Program</u>
Subtotal Product Development					199,389	22,363	0	0	0	221,752
Subtotal Support and Management					33,371	1,401	1,837	1,909	3,921	42,439
Subtotal Test and Evaluation										
Total Project					232,760	23,764	1,837	1,909	3,921	264,191
Project 4102				Page 6 of 11 Pages				Exhibit R-3 (PE 0604233F)		

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	DATE February 2002
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BUDGET ACTIVITY 05 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604233F Specialized Undergraduate Pilot Training
PROJECT 4376	

COST (\$ in Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
4376 T-38 Avionics Upgrade Program (AUP)	2,604	3,000	0	0	0	0	0	0	84,038

(U) **A. Mission Description**
 The T-38 Avionics Upgrade Program (AUP) is an integrated modernization of the T-38A and AT-38B cockpits to support mission-ready fighter training and converts all T-38A and AT-38B aircraft to T-38C configuration. The modernized digital cockpit will include Global Positioning System (GPS), Head-Up Display (HUD), Inertial Navigation System (INS), Multi-Function Displays (MFDs), Up-Front Control Panel (UFCP), Data Transfer System (DTS), No-Drop Bombing System (NDBS), and Hands-On Throttle and Stick (HOTAS) switchology. HUD symbology will be the new USAF standard recently certified as a primary flight reference. Also included is the acquisition of two types of Aircrew Training Devices (ATDs) to replace the existing T-51 simulators. The program includes the design, integration, test, and installation of the cockpit prototype in aircraft, ATDs, and other training devices, as well as engineering services, studies, analysis and support to determine the feasibility of incorporating changes for purposes of making informed life-cycle cost business decisions. Additionally, funds are included in FY2000 and FY2001 for Phase I testing of engine operability/suitability for the T-38 Propulsion Modernization Program (PMP) and to update T-38 flight performance models, Technical Orders, and AUP software for changes brought about by the T-38 PMP. FY2002 funding is for AUP block software updates driven by FAA-mandated changes; National Aerospace System (NAS) requirements such as Global Air Traffic Management (GATM), Joint Precision Approach and Landing System (JPALS), GPS, GPS Embedded Module (GEM) issues (Selective Availability Anti-Spoofing Module (SAASM), precision and GPS approaches); and/or enhancements identified during Development Testing, Operational Testing and Force Development Evaluation (FDE), and AETC operations such as scratch pad, improvements to UFCP, HUD, Built In Test (BIT), mechanization of menus/modes and mission planning/debriefing system, ATD HUD projectors, and Computer Aided Module (CAM) operations.

- (U) **FY 2001 (\$ in Thousands)**
- (U) \$2,364 Update T-38 flight performance models, Technical Orders, and AUP aircraft and Aircrew Training Device (ATD) software for changes brought about by the T-38 PMP
- (U) \$240 Other government costs
- (U) \$2,604 Total

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)							DATE February 2002			
BUDGET ACTIVITY				PE NUMBER AND TITLE			PROJECT			
05 - Engineering and Manufacturing Development				0604233F Specialized Undergraduate Pilot Training			4376			
(U) <u>A. Mission Description Continued</u>										
(U) <u>FY 2002 (\$ in Thousands)</u>										
(U)	\$2,500	Develop and test Block 3 and define Block X T-38C AUP aircraft and ATD software for requirements driven by FAA/NAS mandates and/or identified during Test and Evaluation and by AETC operations								
(U)	\$500	Other government cost and test								
(U)	\$3,000	Total								
(U) <u>FY 2003 (\$ in Thousands)</u>										
(U)	\$0	No Activity								
(U)	\$0	Total								
(U) <u>B. Project Change Summary</u>										
No major changes.										
(U) <u>C. Other Program Funding Summary (\$ in Thousands)</u>										
		<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>
		<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U)	AF RDT&E	2,604	3,000	0	0	0	0	0	0	84,038
(U)	Other APPN									
(U)	PE 0804741F, T-38 Avionics Upgrade, BP 1100	82,738	74,296	98,698	98,640	54,806	52,541	40,847	92,823	595,389
(U)	PE 0804741F, T-38 Avionics Upgrade, Initial Spares, BP 1600	0	1,264	2,132	3,688	994	0	0	0	8,078
(U)	PE 0804741F, T-38 Propulsion Modification, BP 1100	30,914	57,707	65,007	67,527	64,256	67,708	70,512	378,824	802,720
(U)	PE 0804741F, T-38 Propulsion Engine Modification, Initial Spares, BP 1600	2,566	4,499	4,974	4,889	4,855	5,379	5,473	22,608	55,243
Project 4376									Exhibit R-2A (PE 0604233F)	

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)							DATE February 2002			
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604233F Specialized Undergraduate Pilot Training				PROJECT 4376		
(U) C. Other Program Funding Summary (\$ in Thousands)										
	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>	
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>		
(U) PE 0804741F, T-38 Ejection System Upgrade, BP 1100		12,800							12,800	
(U) D. Acquisition Strategy										
The T-38 AUP competitively awarded three contracts to a single prime: a) a cost plus award fee EMD contract with six firm fixed price production options; b) a firm fixed price CLS contract for avionics including Contractor Owned and Maintained Base Supply (COMBS) (O&M funds); and c) a fixed price award fee maintenance contract for the current and new Aircrew Training Devices (ATDs). The T-38 PMP will be comprised of four contractual efforts: a J85-5 engine modification and ejector nozzle will be sole source additions to a current contract with General Electric, b) the inlet/former/bulkhead kits will be a competitive award; c) a task order will be established on the existing Contractor Field Team (CFT) contract for kit installation; and d) the T-38 software changes required by the PMP will be added to the existing Boeing contract for the AUP. FY2002 software block updates will be changes to existing contracts.										
(U) E. Schedule Profile										
		<u>FY 2001</u>			<u>FY 2002</u>			<u>FY 2003</u>		
		1	2	3	4	1	2	3	4	
(U) First Production ATD Delivered			*							
(U) First Production Aircraft Delivered			*							
(U) Final Functional Configuration Audit (FCA)			*							
(U) IOT&E Phase II Complete			*							
(U) Full Rate Production Decision			*							
(U) Phase I Testing of PMP Complete				*						
(U) Required Assets Available (RAA)					*					
(U) Initial Operational Capability (IOC)						X				
(U) Initiate Software Block 3 on AUP						X				
(U) Field Block 3									X	
* Denotes completed milestone X Denotes planned milestone										
Project 4376			Page 9 of 11 Pages				Exhibit R-2A (PE 0604233F)			

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2002			
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604233F Specialized Undergraduate Pilot Training				PROJECT 4376		
(U) A. Project Cost Breakdown (\$ in Thousands)										
						<u>FY 2001</u>		<u>FY 2002</u>		<u>FY 2003</u>
(U)	Other Government Costs and test					240		500		0
(U)	Propulsion Modernization Program					2,364		0		0
(U)	Block 3 Software Update					0		2,500		0
(U)	Total					2,604		3,000		0
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)										
(U) Performing Organizations:										
<u>Contractor or</u>	<u>Contract</u>									
<u>Government</u>	<u>Method/Type</u>	<u>Award or</u>	<u>Performing</u>	<u>Project</u>						
<u>Performing</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Activity</u>	<u>Office</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Activity</u>	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>	<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Complete</u>	<u>Program</u>
<u>Product Development Organizations</u>										
The Boeing Corporation	C/CPAF	31 Jul 96	68,518	68,518	63,654	2,364	2,500	0	0	68,518
St. Louis MO										
ASC/YT WPAFB OH	Various	Annual	N/A	N/A	9,601	50	60	0	0	9,711
GE, Lynn MA	CPFF	Jan 00	750	750	738	0	0	0	0	738
ASC/LP, WPAFB OH	Various	Annual	N/A	N/A	39	0	0	0	0	39
<u>Support and Management Organizations</u>										
SA-ALC/LF Kelly AFB TX	Various	Quarterly	N/A	N/A	194	0	0	0	0	194
AETC Randolph AFB TX	Various	Quarterly	N/A	N/A	150	50	125	0	0	325
OO-ALC/LIR Ogden AFB	Various	Quarterly	N/A	N/A	345	0	15	0	0	360
UT										
<u>Test and Evaluation Organizations</u>										
445 FLTS Edwards AFB CA	PO	Annual	N/A	N/A	3,382	0	300	0	0	3,682
AFOTEC Kirtland AFB NM	PO	Annual	N/A	N/A	331	140	0	0	0	471

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE					
BUDGET ACTIVITY		PE NUMBER AND TITLE			PROJECT		
05 - Engineering and Manufacturing Development		0604233F Specialized Undergraduate Pilot Training			4376		
		<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	
		<u>to FY 2001</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Complete</u>	
						<u>Total</u>	
						<u>Program</u>	
<u>Subtotals</u>							
Subtotal Product Development		74,032	2,414	2,560	0	0	79,006
Subtotal Support and Management		689	50	140	0	0	879
Subtotal Test and Evaluation		3,713	140	300	0	0	4,153
Total Project		78,434	2,604	3,000	0	0	84,038

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