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DEPARTMENT OF THE AIR FORCE

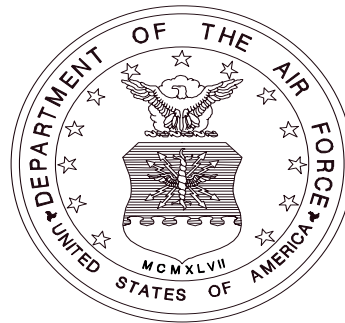
FISCAL YEAR (FY) 2004/2005 BIENNIAL BUDGET ESTIMATES

RESEARCH, DEVELOPMENT, TEST AND EVALUATION (RDT&E)

DESCRIPTIVE SUMMARIES, VOLUME II

BUDGET ACTIVITIES 4 - 6

FEBRUARY 2003



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**Fiscal Year 2004/2005 Biennial Budget Estimates
RDT&E Descriptive Summaries, Volume II
Budget Activities 4 - 6
February 2003**

INTRODUCTION AND EXPLANATION OF CONTENTS

1. (U) GENERAL

A. This document has been prepared to provide information on the United States Air Force (USAF) Research, Development, Test and Evaluation (RDT&E) program elements and projects in the FY 2004 President's Budget.

- 4) All exhibits in this document have been assembled in accordance with DoD 7000.14R, Financial Management Regulation, Volume 2B, Chapter 5, Section 050402. Exceptions:
 - a) Exhibit R-1, RDT&E Program, which was distributed under a separate cover due to classification.
 - b) Exhibit R-4/4a, RDT&E Program Schedule Profile/Detail, the USAF could not modify its documentation preparation software in time to include the new R-4/4a exhibit in this submission. The previous schedule profile is presented in this submission in order to provide the data now required by the R-4/4a exhibit.
- 5) All exhibit formats in this document are in accordance with guidelines prescribed in DoD 7000.14R, Financial Management Regulation, Volume 2B, Chapter 5, Section 050402. Exceptions:
 - a) Exhibits R-2/2a, RDT&E Budget Item Justification/Project Justification, the USAF could not modify its documentation preparation software in time to include the revised R-2/2a exhibit format in this submission, however, all required information is provided within the previous R-2/2a format.
 - b) Exhibit R-3, RDT&E Project Cost Analysis, the USAF could not support the R-3 format matrix because it does not track programs in the manner required to complete the revised exhibit, however, all required information is provided within the previous R-3 format.
- 6) Other comments on exhibit contents in this document:
 - a) Funding (\$) is presented in the previous cost table format using thousands as the smallest increment. (e.g. \$1,000 = 0.001)
 - b) Exhibits R-2/2a and R-3 provide narrative information for all RDT&E program elements and projects within the USAF FY 2004 RDT&E program with the exception of classified program elements. The formats and contents of this document are in accordance with the guidelines and requirements of the Congressional committees insofar as possible.
 - c) 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.
 - d) "Facilities Exhibits", Military Construction Project Data, (DD 1391), for improvements to and construction of government-owned facilities funded in RD&E, are included at the end of Volume III.

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

PROGRAM ELEMENT (By BUDGET ACTIVITY)		REMARKS
BUDGET ACTIVITY #1: BASIC RESEARCH (Volume I)		
0601103F	University Research Initiatives	<p>In FY 2004, this is a new PE.</p> <p>Project 5094, University Research Initiatives, efforts were transferred from the Office of the Secretary of Defense (OSD).</p>
0601108F	High Energy Laser Research Initiatives	<p>In FY 2004, this is a new PE.</p> <p>In FY 2004, Project 5097, High Energy Laser Research Initiatives, efforts were transferred from OSD.</p>
BUDGET ACTIVITY #2: APPLIED RESEARCH (Volume I)		
0602102F	Materials	<p>In FY 2004, Project 2015, Rocket Materials Technology, efforts transferred to PE 0602500F, Multi-Disciplinary Space Technologies, Project 5025, Space Materials Development, as a result of the Space Commission recommendation to consolidate all space unique activities.</p>
0602203F	Aerospace Propulsion	<p>In FY 2004, Project 4847, Rocket Propulsion Technologies, efforts were transferred to PE 0602500F, Multi-Disciplinary Space Technologies, Project 5026, Rocket Propulsion Component Technologies, in conjunction with the Space Commission recommendation to consolidate all space unique activities.</p>
0602204F	Aerospace Sensors	<p>In FY 2004, Project 4916, Electromagnetic Technologies, efforts were transferred to PE 0602500F, Multi-Disciplinary Space Technologies, Project 5026, Rocket Propulsion Component Technologies, as a result of the Space Committee recommendation to consolidate all space unique activities.</p>
0602500F	Multi-Disciplinary Space Technologies	<p>In FY 2004, efforts in Projects 5024, Human Centered Applied Space Technologies, were terminated. .</p> <p>In FY 2004, space antenna efforts in PE 0602204F, Aerospace Sensors, Project 4916, Electromagnetic Technologies, were transferred to Project 5025, Rocket Propulsion Component Technologies, as a result of the Space Commission recommendation to consolidate all space unique activities.</p> <p>In FY 2004, efforts in Project 5024, Human Centered Applied Space Technologies, were terminated due to restructuring of the Science and Technology Program.</p>

In FY 2004, Project 5026, Rocket Propulsion Component Technologies, efforts transferred from PE 0602203F, Aerospace Propulsion, Project 4847, Rocket Propulsion Technologies, into this project in conjunction with the Space Commission recommendation to consolidate all space unique activities.

In FY 2004, Project 5026, Rocket Propulsion Component Technologies, efforts were transferred from PE 0602102F, Materials, Project 5015, Rocket Materials Technology, as a result of the Space Commission recommendation to consolidate all space unique activities.

0602890F High Energy Laser Research

In FY 2004, this is a new PE.

In FY 2004, Project 5096, High Energy Laser Research, efforts were transferred from OSD.

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

0401840F AMC Command & Control System

In FY 2004, this is a new PE.

In FY 2004, Project 5119, Agile Transportation 2001, efforts were transferred from OSD.

0603211F Aerospace Technology Development & Demonstration

In FY 2004, Project 5099, National Aerospace Initiatives, includes new start efforts.

0603216F Aerospace Propulsion and Power Technology

In FY 2004, Project 5098, Advanced Aerospace Initiatives, includes new start efforts.

0603311F Ballistic Missile Technologies

In FY 2004, Project 4091, Missile Electronics, efforts were transferred to PE 0603401F, Advanced Spacecraft Technology, Project 5083, Ballistic Missile Technologies, in order to align projects within the Air Force Research Laboratory organization.

0603401F Advanced Spacecraft Technology

In FY 2004, Project 5083, Ballistic Missile Technologies, efforts were transferred from PE 0603311F, Ballistic Missile Technology, Project 4091, Missile Electronics, in order to align projects within the Air Force Research Laboratory organization.

0603755F High Performance Computing Modernization Program

In FY 2004, this is a new PE.

In FY 2004, Project 5093, High Performance Computing Modernization Program, efforts were transferred from OSD.

0603924F High Energy Laser Advanced Technology Program

In FY 2004, this is a new PE.

In FY 2004, Project 5095, High Energy Laser Advanced Technology Program, efforts were transferred from OSD.

0804757F Joint National Training Center

In FY 2004, this is a new PE.

In FY 2004, Project 5124, Training Transformation, efforts were transferred from OSD.

BUDGET ACTIVITY #4: ADVANCED COMPONENT DEVELOPMENT & PROTOTYPE (Volume II)

0603287F	Physical Security Equipment	In FY 2004, this is a new PE. In FY 2004, Project 5121, Physical Security Equipment, efforts were transferred from OSD.
0603430F	Advanced EHF Milsatcom (Space)	In FY 2004, Project 4050, Advanced MILSATCOM, efforts were transferred to PE 0303601F, MILSATCOM Terminals, Project , in order to align the engineering support efforts with the funding element.
0603438F	Space Control Technology	In FY 2004, Project A007, Space Range, efforts were transferred from Project 2611, Technology Insertion and Planning Analysis, in order to realign activities. In FY 2004, Project 2611, Technology Insertion Planning and Analysis, efforts were transferred to Project A007, Space Range, in order to realign activities.
0603790F	NATO Cooperative R&D	In FY 2004, Project NATO, NATO Cooperative R&D, includes new start efforts.
0603791F	International Space Cooperative R&D	In FY 2004, Project 5035, International Cooperative Space R&D, includes new start efforts.
0603851F	ICBM - Demonstration & Validation	In FY 2004, Project 4209, Long Range Planning, includes a new start efforts.
0603854F	Wideband MILSATCOM (Space)	In FY 2004, Project 4944, Advanced Wideband System, efforts were transferred to PE 0303601F, MILSATCOM Terminals, Project 2487, MILSATCOM Terminals, in order to properly align funding.
0603856F	Air Force/National Program Cooperation	In FY2004, Project 4782, Air Force/National Program Cooperation (AFNPC), efforts were transferred to PE 0604441F, Space Based Infrared Systems (SBIRS) High EMD, Project 3616, SBIRS High Element EMD, in order to consolidate all SBIRS development efforts.
0604435F	Interim Polar	In FY 2004, this is a new PE. In FY 2004, Project A010, Advanced Polar System, includes new start efforts.
0604855F	Operationally Responsive Launch	In FY 2004, this is a new PE. In FY 2004, Project A013, Operationally Responsive Launch, includes new start efforts.
0604856F	Common Aero Vehicle	In FY 2004, this is a new PE. In FY 2004, Project A012, Common Aero Vehicle, includes new start efforts.

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

0207256F	UCAV Joint Program Office	In FY 2004, this is a new PE. In FY 2004, Project 5118, UCAV Joint Program Office, includes new start efforts.
0305176F	Combat Survivor Evader Locator	In FY 2004 Project 4522, CSAR EMD, will be completed.
0604226F	B-1B	In FY 2004, Project 4596, Conventional Mission Upgrades, includes new start efforts. In FY 2004, Project 4596, Conventional Mission Upgrades, efforts were transferred to PE 0207446F, Bomber Tactical Data Link, Project 4596, Bomber Tactical Data Link.
0604240F	B-2 Advanced Technology Bomber	In FY 2004, Project 3843, B-2 Advanced Technology Bomber, efforts were transferred to PE 0207446F, Bomber Tactical Data Link, Project 5041, Bomber Tactical Data Link.
0604270F	EW Development	In FY 2004, Project 3945, RF Towed Decoy Systems, was changed to TEWS Upgrade, to reflect restructuring of the EW program. In FY 2004, Project 8462, MALD, was changed to Airborne Electronic Attack, to reflect restructuring of the EW program.
0604287F	Physical Security Equipment	In FY 2004, this is a new PE. Project 5120, Physical Security Equipment SD&DD, efforts were transferred from OSD.
0604441F	Counterspace Systems	In FY2004, Project 4782, Air Force/National Program Cooperation (AFNPC) SBIRS Technical Intelligence (TI) efforts were transferred from PE 0603856F, Air Force/National Program Cooperation, Project 4782, Air Force/National Program Cooperation, in order to consolidate all SBIRS development efforts.
0604617F	Agile Combat Support	In FY 2004, Project 2895, Civil Engineering Readiness, includes new start efforts.
0604735F	Combat Training Ranges	In FY 2004, Project 2286, Combat Training Range Equipment, includes new start efforts.
0604851F	ICBM - Engineering, Manufacturing & Development	In 2004, Project 5080, ICBM Security, is a new start effort.
0604853F	Evolved Expendable Launch Vehicle - EMD	In FY 2004, Project 0004, Evolved Expendable Launch Vehicle, includes new start efforts.

BUDGET ACTIVITY #6: MANAGEMENT & SUPPORT (Volume II)

0604759F	Major T&E Investment	In FY 2004, Project 4597, Air Force Test Investments, includes new start efforts.
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0605807F	Test & Evaluation Support	<p>In FY 2004, Project 06TS, T&E Support, efforts transferred to PE 0605976F, Facility Restoration & Modernization - T&E, Project 06MC, Facility Restoration & Modernization - T&E.</p> <p>In FY 2004, Project 06TS, T&E Support, efforts transferred to PE 0605978F, Facility Sustainment - T&E Support, Project 06MR, Facility Sustainment - T&E Support.</p>
0605976F	Facility Restoration & Modernization - T&E	<p>In FY 2004, this is a new PE.</p> <p>In FY 2004, Project 06MC, Facility Restoration & Modernization - T&E, efforts were transferred from PE 0605807F, Test & Evaluation Support, Project 06TS, T&E Support.</p>
0605978F	Facility Sustainment - T&E Support	<p>In FY 2004, this is a new PE.</p> <p>In FY 2004, Project 06MR, Facility Sustainment - T&E Support, efforts were transferred from PE 0605807F, Test & Evaluation Support, Project 06TS, T&E Support.</p>
0804731F	General Skills Training	<p>In FY 2004, Project 4980, Research and Development of Computer Forensic Analyst Tools, includes new start efforts.</p>
BUDGET ACTIVITY #7: OPERATIONAL SYSTEMS DEVELOPMENT (Volume III)		
0101113F	B-52 Squadrons	<p>In FY 2004, Project 4810, Avionics Midlife Improvement, efforts were transferred to PE 0207446F, Bomber Tactical Data Link.</p>
0101120F	Advanced Cruise Missile	<p>In FY 2003, Project 4798, Life Extension Study, was changed to Life Extension Program.</p> <p>In FY 2004, Project 4797, Flight Testing & Navigation Enhancement, includes new start efforts.</p> <p>In FY 2004, Project 4798, Life Extension Program, includes new start efforts.</p>
0207134F	F-15E Squadrons	<p>In FY 2004, Project 0131, Initial Operational Test & Evaluation, includes new start efforts.</p>
0207138F	F-22 Squadrons	<p>In FY 2004, Project 4785, F-22, includes new start efforts.</p>
0207141F	F-117A Squadron	<p>In FY 2004, Project 3956, F-117A Stealth Fighter, includes new start efforts.</p>
0207417F	AWACS	<p>In FY 2004, Project 411L, AWACS, efforts were transferred to PE 0207448F, C2ISR Tactical Data Link, Project 5045, C2ISR Tactical Data Link.</p>
0207446F	Bomber Tactical Data Link	<p>In FY 2004, this is a new PE.</p> <p>In FY 2004, Project 5041, Bomber Tactical Data Link, efforts were transferred from PE 0101113F, B-52 Squadrons, Project 4810, Avionics Midlife Improvement.</p>

In FY 2004, Project 5041, Bomber Tactical Data Link, efforts were transferred from PE 0604226F, B-1B, Project 4596, Conventional Mission Upgrades.

In FY 2004, Project 5041, Bomber Tactical Data Link, efforts were transferred from PE 0604240F, B-2 Advanced Technology Bomber, Project 3843, B-2 Advanced Technology Bomber.

0207448F	C2ISR Tactical Data Link	<p>In FY 2004, this is a new PE.</p> <p>In FY 2004, Project 5045, C2ISR Tactical Data Link, efforts were transferred from PE 0207417F, AWACS, Project 411L, AWACS.</p> <p>In FY 2004, Project 5045, C2ISR Tactical Data Link, efforts were transferred from PE 0207581F, JSTARS, Project 0003, JSTARS.</p>
0207581F	JSTARS	<p>In FY 2004, Project 0003, JSTARS, efforts were transferred to PE 0207448F, C2ISR Tactical Data Link, Project 5045, C2ISR Tactical Data Link.</p>
0207601F	USAF Modeling & Simulation	<p>In FY 2004, Project 4567, Joint Modeling and Simulation System, includes new start efforts.</p> <p>In FY 2004, Project 5122, C4ISR Warfighting Integration, includes new start efforts.</p>
0303131F	Minimum Essential Emergency Communications Network	<p>In FY 2004, project 5047, Ground Element MEECN System (GEMS), includes new start efforts.</p>
0303140F	Information Systems Security Program	<p>In FY 2004, Project 4861, Cryptologic 2000, efforts were transferred from PE 030401F, Communications Security, Project 4861.</p>
0303141F	Global Combat Support System (GCSS)	<p>In FY 2004, Project Number 4928, Electronic Business/Electronic Commerce (EB/EC), efforts were transferred to PE 0303200F, Air Force CIO Ops and Support.</p>
0303401F	Communications Security	<p>In FY 2004, Project 4861, Cryptologic 2000, efforts were transferred to PE 33140F, Information Systems Security Program, Project 4861, Cryptologic 2000.</p>
0303601F	MILSATCOM Terminals	<p>In FY 2004, Project 2487, MILSATCOM Terminals, efforts were transferred from PE 0603854F, Wideband MILSATCOM (Space), Project 4944, Advanced Wideband System, in order to properly align funding.</p>
0305160F	Defense Meteorological Satellite Program	<p>In FY2004, Project 04758, DMSP Program, was completed.</p>
0305111F	Weather Service	<p>In FY 2004, Project 2738, Weather Service, includes new start efforts.</p>
0305174F	Space Warfare Center	<p>In FY 2004, this is a new PE.</p> <p>In FY 2004, Project A011, Space Analysis and Application Development, includes new start efforts.</p>

0305207F	Manned Reconnaissance Systems	In FY 2004, Project 4754, Cobra Ball, includes new start efforts.
0305906F	NCMC - TW/AA System	In FY 2004, Project 4806, N/UWSS, changed to CCIC2CS to more correctly depict end-user weapon system capabilities.
0305910F	SPACETRACK	In FY 2004, Project A009, Orbital Deep Space Imager, includes new start efforts.
		In FY 2004, Project , , includes new start efforts due to the Navy Space Surveillance Fence, PE 35927N, being transferred from the Navy to the Air Force.
		Project 5011, Space Situational Awareness Initiatives , efforts were transferred to Project A009, Orbital Deep Space Imager.
		Project A009, Orbital Deep Space Imager, efforts were transferred from Project 5011, Space Situational Awareness Initiatives.
		FY 2004, Project 5011, Space Situational Awareness Initiatives, efforts were transferred to Project A008, Sensor SLEP.
		In FY 2004, Project A008, Sensor SLEP, efforts were transferred from Project 5011, Space Situational Awareness Initiatives.
0305917F	Space Architect	In FY 2004, this is a new PE.
		In FY 2004, Project 4746, National Security Space Architect, efforts were transferred from OSD.
0401134F	Large Aircraft Infra-Red Countermeasures Program (LAIRCM)	In FY 2004, Project 4942, LAIRCM, includes new start efforts.
0708612F	Computer Resources Support Improvement Program (CRSIP)	In FY 2004, Project 4851, Embedded CRSIP, was terminated.
0901212F	Service Wide Support	In FY2004 efforts within Project 5060, Joint Personal Adjudication System, will transfer to OSD due to a newly re-aligned Defense Security Service (DSS) under ASD (C3I)

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

0101815F	Advanced Strategic Programs
0207248F	Special Evaluation Program
0207424F	Evaluation and Analysis Program
0207591F	Advanced Program Evaluation
0208160F	Technical Evaluation System
0208161F	Special Evaluation System
0304311F	Selected Activities
0603801F	Special Programs

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									DATE February 2003	
BUDGET ACTIVITY 04 - Advanced Component Development and Prototypes (ACD&P)					PE NUMBER AND TITLE 0603260F Intelligence Advanced Development					
COST (\$ in Thousands)	FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	5,117	4,422	4,513	4,624	4,668	4,750	4,814	4,885	Continuing	TBD
3479 Advanced Sensor Exploitation	749	803	814	832	840	855	871	890	Continuing	TBD
3480 Automated Imagery Exploitation	1,271	1,297	1,308	1,339	1,352	1,375	1,391	1,408	Continuing	TBD
3481 Knowledge Based Tech For Intelligence	1,314	1,290	1,331	1,365	1,378	1,402	1,418	1,435	Continuing	TBD
3482 Science & Tech Intelligence Methodology	1,783	1,032	1,060	1,088	1,098	1,118	1,134	1,152	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

(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 operational levels. This program bridges the transition of Advance Technology Demonstrations (ATDs), Integrated Technology Thrust Programs (ITTPs), and supports Defense Technology Objectives (DTOs).

(U) **B. Budget Activity Justification**
 This program is in Advanced Component Development & Prototypes (ACD&P), Budget Activity 4, because it demonstrates and validates advanced technology which enhances information / intelligence systems' capabilities and techniques.

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE
February 2003

BUDGET ACTIVITY
04 - Advanced Component Development and Prototypes
(ACD&P)

PE NUMBER AND TITLE
0603260F Intelligence Advanced Development

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

	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>Total Cost</u>
(U) Previous President's Budget	4,438	4,545	4,623	TBD
(U) Appropriated Value	4,482	4,545		
(U) Adjustments to Appropriated Value				
a. Congressional/General Reductions	-44	-30		
b. Small Business Innovative Research				
c. Omnibus or Other Above Threshold Reprogram		-45		
d. Below Threshold Reprogram	702			
e. Rescissions	-23	-48		
(U) Adjustments to Budget Years Since FY 2003 PBR			-110	
(U) Current Budget Submit/FY 2004 PBR	5,117	4,422	4,513	TBD
(U) <u>Significant Program Changes:</u>				

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)									DATE February 2003		
BUDGET ACTIVITY 04 - Advanced Component Development and Prototypes (ACD&P)					PE NUMBER AND TITLE 0603260F Intelligence Advanced Development					PROJECT 3479	
COST (\$ in Thousands)	FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost	
3479 Advanced Sensor Exploitation	749	803	814	832	840	855	871	890	Continuing	TBD	
<p>(U) <u>A. Mission Description</u> 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 an 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.</p> <p>(U) <u>FY 2002 (\$ in Thousands)</u> (U) \$0 Accomplishment/Planned Prog (U) \$278 Completed Time Sensitive Target Nominations (TSTN) (U) \$327 Continued Enhanced Intel Prep of the Battlespace (EIPB) (U) \$144 Continued Moving Target Exploitation (MTE) Tracking Enhancements (U) \$749 Total</p> <p>(U) <u>FY 2003 (\$ in Thousands)</u> (U) \$146 Initiate Predictive Battlespace Awareness (PBA) Fusion 2+ (U) \$95 Complete Enhanced Intel Prep of the Battlespace (EIPB) (U) \$346 Complete Moving Target Exploitation (MTE) Tracking Enhancements (U) \$216 Initiate Advanced Fusion Workstation (AFWS) (U) \$803 Total</p>											
Project 3479			Page 3 of 21 Pages				Exhibit R-2A (PE 0603260F)				

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)							DATE February 2003																																																																																																																																																	
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<p>(U) <u>A. Mission Description Continued</u></p> <p>(U) <u>FY 2004 (\$ in Thousands)</u></p> <p>(U) \$0 Accomplishment/Planned Program</p> <p>(U) \$423 Complete Advanced Fusion Workstation (AFWS)</p> <p>(U) \$391 Continue Predictive Battlespace Awareness (PBA) Fusion 2+</p> <p>(U) \$814 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><u>FY 2002</u></th> <th><u>FY 2003</u></th> <th><u>FY 2004</u></th> <th><u>FY 2005</u></th> <th><u>FY 2006</u></th> <th><u>FY 2007</u></th> <th><u>FY 2008</u></th> <th><u>FY 2009</u></th> <th><u>Cost to</u></th> <th><u>Total Cost</u></th> </tr> <tr> <th></th> <th><u>Actual</u></th> <th><u>Estimate</u></th> <th><u>Estimate</u></th> <th><u>Estimate</u></th> <th><u>Estimate</u></th> <th><u>Estimate</u></th> <th><u>Estimate</u></th> <th><u>Estimate</u></th> <th><u>Complete</u></th> <th></th> </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> <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> <td></td> </tr> <tr> <td></td> <td colspan="10">None</td> </tr> </tbody> </table> <p>(U) <u>D. Acquisition Strategy</u> All major contracts within this Program Element were awarded after full and open competition.</p> <p>(U) <u>E. Schedule Profile</u></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th colspan="3"><u>FY 2002</u></th> <th colspan="3"><u>FY 2003</u></th> <th colspan="3"><u>FY 2004</u></th> </tr> <tr> <th></th> <th>1</th> <th>2</th> <th>3</th> <th>4</th> <th>1</th> <th>2</th> <th>3</th> <th>4</th> <th>1</th> <th>2</th> <th>3</th> <th>4</th> </tr> </thead> <tbody> <tr> <td>(U) Completed Time Sensitive Target Nominations (TSTN)</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) Complete Enhanced Intel Prep of the Battlespace (EIPB)</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>X</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) Complete Moving Target Exploitation (MTE) Tracking Enhancements</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>X</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) Initiate/Complete Advanced Fusion Work Station (AFWS)</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>X</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>X</td> </tr> <tr> <td>(U) Initiate Predictive Battlespace Awareness (PBA) Fusion 2+</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>X</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <p>* - Denotes completed event X - Denotes planned event</p>											<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>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>		<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>		(U) AF RDT&E											(U) Other APPN												None											<u>FY 2002</u>			<u>FY 2003</u>			<u>FY 2004</u>				1	2	3	4	1	2	3	4	1	2	3	4	(U) Completed Time Sensitive Target Nominations (TSTN)		*											(U) Complete Enhanced Intel Prep of the Battlespace (EIPB)						X							(U) Complete Moving Target Exploitation (MTE) Tracking Enhancements								X					(U) Initiate/Complete Advanced Fusion Work Station (AFWS)						X						X	(U) Initiate Predictive Battlespace Awareness (PBA) Fusion 2+							X					
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(U) Complete Enhanced Intel Prep of the Battlespace (EIPB)						X																																																																																																																																																		
(U) Complete Moving Target Exploitation (MTE) Tracking Enhancements								X																																																																																																																																																
(U) Initiate/Complete Advanced Fusion Work Station (AFWS)						X						X																																																																																																																																												
(U) Initiate Predictive Battlespace Awareness (PBA) Fusion 2+							X																																																																																																																																																	
Project 3479			Page 4 of 21 Pages				Exhibit R-2A (PE 0603260F)																																																																																																																																																	

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2003			
BUDGET ACTIVITY					PE NUMBER AND TITLE				PROJECT	
04 - Advanced Component Development and Prototypes (ACD&P)					0603260F Intelligence Advanced Development				3479	
(U) A. Project Cost Breakdown (\$ in Thousands)										
						<u>FY 2002</u>		<u>FY 2003</u>		<u>FY 2004</u>
(U)	Time Sensitive Target Nominations (TSTN)					278		0		0
(U)	Enhanced Intel Prep of the Battlespace (EIPB)					327		95		0
(U)	Moving Target Exploitation (MTE) Tracking Enhancements					144		346		0
(U)	Predictive Battlespace Awareness (PBA) Fusion 2+					0		146		423
(U)	Advanced Fusion WorkStation (AFWS)					0		216		391
(U)	Total					749		803		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 Date</u>	<u>Performing Activity EAC</u>	<u>Project Office EAC</u>	<u>Total Prior to FY 2002</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget FY 2004</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Product Development Organizations</u>										
PRC (00-D-0012)	CPFF	27 Feb 01	N/A	698	420	278	0	0	0	698
Zel-Tech (01-C-0048)	CPFF	6 Mar 01	N/A	1,215	793	327	95	0	0	1,215
Northrop-Grumman (99-C-0067)	CPFF	20 Dec 00	N/A	593	103	144	346	0	0	593
TBD	TBD	TBD	N/A	2,404	0	0	146	423	Continuing	TBD
TBD	TBD	TBD	N/A	607	0	0	216	391	0	607
<u>Support and Management Organizations</u>										
N/A										
<u>Test and Evaluation Organizations</u>										
N/A										
Project 3479					Page 5 of 21 Pages			Exhibit R-3 (PE 0603260F)		

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2003		
BUDGET ACTIVITY 04 - Advanced Component Development and Prototypes (ACD&P)				PE NUMBER AND TITLE 0603260F Intelligence Advanced Development			PROJECT 3479		
(U) <u>Government Furnished Property:</u>									
<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>Obligation</u>	<u>Date</u>	<u>to FY 2002</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</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>Subtotals</u>				<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
Subtotal Product Development				<u>to FY 2002</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>Complete</u>	<u>Program</u>
Subtotal Support and Management				1,316	749	803	814	TBD	TBD
Subtotal Test and Evaluation									
Total Project				1,316	749	803	814	TBD	TBD

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)

DATE
February 2003

BUDGET ACTIVITY 04 - Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603260F Intelligence Advanced Development	PROJECT 3480
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COST (\$ in Thousands)	FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
3480 Automated Imagery Exploitation	1,271	1,297	1,308	1,339	1,352	1,375	1,391	1,408	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 2002 (\$ in Thousands)

- (U) \$0** Accomplishment/Planned Program
- (U) \$191** Continued NATO Secondary Imagery Interoperability
- (U) \$243** Continued eXploitation Tools for Video (XTV)
- (U) \$239** Completed Smart Digital Imagery & Video Exploitation Tools
- (U) \$179** Completed Multi Sensor Intel Exploitation Applications for GCCS
- (U) \$419** Completed Hyper-Spectral Image Exploitation
- (U) \$1,271** Total

(U) FY 2003 (\$ in Thousands)

- (U) \$0** Accomplishment/Planned Program
- (U) \$202** Complete NATO Secondary Imagery Interoperability
- (U) \$298** Complete eXploitation Tools for Video (XTV)
- (U) \$198** Initiate Metadata Archival & Retrieval System (MARS) Geospacial Intel Tools
- (U) \$175** Initiate Hypershop/Imagery Viewer
- (U) \$148** Initiate Video Annotation/Imagery Viewer
- (U) \$276** Initiate Imagery Assurance and Exploitation
- (U) \$1,297** Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)							DATE February 2003						
BUDGET ACTIVITY 04 - Advanced Component Development and Prototypes (ACD&P)				PE NUMBER AND TITLE 0603260F Intelligence Advanced Development				PROJECT 3480					
(U) <u>A. Mission Description Continued</u>													
(U) <u>FY 2004 (\$ in Thousands)</u>													
(U) \$0 Accomplishment/Planned Program													
(U) \$344 Complete Metadata Archive & Retrieval System (MARS) Geospacial Intel Tools													
(U) \$194 Complete Hypershop/Imagery Viewer													
(U) \$194 Continue Video Annotation/ Imagery Viewer													
(U) \$144 Continue Imagery Assurance and Exploitation													
(U) \$432 Initiate UAV Motion Imagery Exploitation (MIE)													
(U) \$1,308 Total													
(U) <u>B. Project Change Summary</u>													
Not Applicable													
(U) <u>C. Other Program Funding Summary (\$ in Thousands)</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>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>			
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>				
(U) AF RDT&E													
(U) Other APPN													
None													
(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 2002</u>				<u>FY 2003</u>			<u>FY 2004</u>				
		1	2	3	4	1	2	3	4	1	2	3	4
(U) Completed Multi-Sensor Intel Exploitation Applications for GCCS					*								
(U) Completed Hyper Spectral Image Exploitation (HIET)					*								
(U) Completed Smart Digital Imagery & Video Exploitation Tools					*								
(U) Initiate/Complete (MARS) Geospacial Intel							X						X
(U) Initiate/Complete Hypershop/Imagery Viewer							X						X
Project 3480													

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)										DATE February 2003			
BUDGET ACTIVITY					PE NUMBER AND TITLE					PROJECT			
04 - Advanced Component Development and Prototypes (ACD&P)					0603260F Intelligence Advanced Development					3480			
(U) E. Schedule Profile Continued													
		<u>FY 2002</u>					<u>FY 2003</u>					<u>FY 2004</u>	
		1	2	3	4	1	2	3	4	1	2	3	4
(U)	Initiate Video Annotation/Imagery Viewer						X						
(U)	Initiate Imagery Assurance & Exploitation						X						
(U)	Complete eXploitation Tools for Video (XTV)								X				
(U)	Complete NATO Secondary Imagery Interoperability								X				
(U)	Initiate UAV Motion Imagery Exploitation (MIE)											X	
	* - Denotes completed event												
	X - Denotes planned event												
Project 3480													
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Exhibit R-2A (PE 0603260F)													

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2003			
BUDGET ACTIVITY					PE NUMBER AND TITLE			PROJECT		
04 - Advanced Component Development and Prototypes (ACD&P)					0603260F Intelligence Advanced Development			3480		
(U) A. Project Cost Breakdown (\$ in Thousands)										
					FY 2002		FY 2003			FY 2004
(U)	Multi Sensor Intel Exploitation Apps for GCCS				179		0			0
(U)	NATO Second Imagery Interoperability				191		202			0
(U)	eExploitation Tools for Video				243		298			0
(U)	Smart Digital Imagery				239		0			0
(U)	Hyper-Spectral Image Exploitation Toolkit (HIET)				419		0			0
(U)	Metadata Archive & Retrieval System (MARS) Geospacial Intelligence Tools				0		198			344
(U)	Hypershop/Imagery Viewer PhI				0		175			194
(U)	Video Annotation/Imagery Viewer PhII				0		148			194
(U)	Imagery Assurance & Exploitation				0		276			144
(U)	UAV Motion Imagery Exploitation (MIE)				0		0			432
(U)	Total				1,271		1,297			1,308
(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 2002</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget FY 2004</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Product Development Organizations</u>										
PAR, Inc. (01-C-0073)	CPFF	6 Apr 01	N/A	443	50	191	202	0	0	443
PRC (97-C-0030)	CPFF	1 Jun 01	N/A	616	75	243	298	0	0	616
Research Foundation, U. of Binghamton (00-1-0521)	Grant	8 Nov 00	N/A	442	203	239	0	0	0	442
PAR, Inc. (98-C-0166)	CPFF	11 May 98	N/A	567	388	179	0	0	0	567
PAR, Inc. (00-C-0046)	CPFF	1 Nov 00	N/A	920	501	419	0	0	0	920
TBD				542	0	0	198	344	0	542
TBD				369	0	0	175	194	0	369
Project 3480					Page 10 of 21 Pages			Exhibit R-3 (PE 0603260F)		

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2003	
BUDGET ACTIVITY				PE NUMBER AND TITLE			PROJECT	
04 - Advanced Component Development and Prototypes (ACD&P)				0603260F Intelligence Advanced Development			3480	
(U) <u>Performing Organizations Continued:</u>								
<u>Product Development Organizations</u>								
TBD			442	0	0	148	194	Continuing TBD
TBD			620	0	0	276	144	Continuing TBD
TBD			1,032	0	0	0	432	Continuing 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>Description</u>	<u>Vehicle</u>	<u>Date</u>	<u>Date</u>	<u>to FY 2002</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>Complete</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>Subtotals</u>				<u>to FY 2002</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>Complete</u>
Subtotal Product Development				1,217	1,271	1,297	1,308	TBD
Subtotal Support and Management								
Subtotal Test and Evaluation								
Total Project				1,217	1,271	1,297	1,308	TBD

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)									DATE February 2003		
BUDGET ACTIVITY 04 - Advanced Component Development and Prototypes (ACD&P)					PE NUMBER AND TITLE 0603260F Intelligence Advanced Development					PROJECT 3481	
COST (\$ in Thousands)	FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost	
3481 Knowledge Based Tech For Intelligence	1,314	1,290	1,331	1,365	1,378	1,402	1,418	1,435	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. This program is in Advanced Component Development & Prototypes (ACD&P), Budget Activity 4, because it demonstrates and validates advanced technology which enhances information/intelligence systems' capabilities and techniques.</p> <p>(U) <u>FY 2002 (\$ in Thousands)</u> (U) \$0 Accomplishment/Planned Program (U) \$504 Continued Trusted Transfer Agent (TTA) -- Completed Phase 1, Reach Down; Initiated Phase 2, Reach Up (U) \$555 Continued Broadsword Enhancements (U) \$255 Initiated WebTAS (Timeline Analysis System) Transition into CAOC-X (U) \$1,314 Total</p> <p>(U) <u>FY 2003 (\$ in Thousands)</u> (U) \$0 Accomplishment/Planned Program (U) \$288 Initiate Web-based Messaging Agent (WMA) (U) \$363 Continue Trusted Transfer Agent (TTA) -- Continue Phase 2, Reach Up; Initiate Phase 3, Star Guard (U) \$502 Complete Broadsword Enhancements (U) \$137 Complete WebTAS Transition into CAOC-X (U) \$1,290 Total</p>											
Project 3481			Page 12 of 21 Pages				Exhibit R-2A (PE 0603260F)				

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)							DATE February 2003																																																																																																																																																														
BUDGET ACTIVITY 04 - Advanced Component Development and Prototypes (ACD&P)				PE NUMBER AND TITLE 0603260F Intelligence Advanced Development				PROJECT 3481																																																																																																																																																													
<p>(U) <u>A. Mission Description Continued</u></p> <p>(U) <u>FY 2004 (\$ in Thousands)</u></p> <p>(U) \$0 Accomplishment/Planned Program</p> <p>(U) \$305 Continue Trusted Transfer Agent (TTA) -- Complete Phase 2, Reach Up</p> <p>(U) \$342 Continue Web-based Messaging Agent (WMA)</p> <p>(U) \$342 Continue TTA -- Phase 3, Star Guard</p> <p>(U) \$342 Initiate Information Operations Tool Access (IOTA) (Next generation Broadsword)</p> <p>(U) \$1,331 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 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>FY 2008</u></th> <th style="text-align: center;"><u>FY 2009</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>Estimate</u></th> <th style="text-align: center;"><u>Estimate</u></th> <th style="text-align: center;"><u>Estimate</u></th> <th style="text-align: center;"><u>Estimate</u></th> <th style="text-align: center;"><u>Estimate</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) AF RDT&E</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) Other APPN</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>None</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>(U) <u>D. Acquisition Strategy</u> All major contracts within this Program Element were awarded after full and open competition.</p> <p>(U) <u>E. Schedule Profile</u></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th></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> <th colspan="3" style="text-align: center;"><u>FY 2004</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) Completed Trusted Transfer Agent (TTA)/Phase 1, Reach Down</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> <tr> <td>(U) Initiated/Complete TTA/Phase 2, Reach Up</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 style="text-align: center;">X</td> </tr> <tr> <td>(U) Initiated/Complete WebTAS Transition into CAOC-X</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><td></td> </tr> <tr> <td>(U) Complete Broadsword Enhancements</td> <td></td><td></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> </tr> <tr> <td>(U) Initiate Web-Based Messaging Agent (WMA)</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><td></td><td></td> </tr> <tr> <td>(U) Initiate TTA/Phase 3, Star Guard</td> <td></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> </tr> </tbody> </table>											<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>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>		<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>		(U) AF RDT&E											(U) Other APPN											None												<u>FY 2002</u>			<u>FY 2003</u>			<u>FY 2004</u>				1	2	3	4	1	2	3	4	1	2	3	4	(U) Completed Trusted Transfer Agent (TTA)/Phase 1, Reach Down				*									(U) Initiated/Complete TTA/Phase 2, Reach Up				*								X	(U) Initiated/Complete WebTAS Transition into CAOC-X			*										(U) Complete Broadsword Enhancements												X	(U) Initiate Web-Based Messaging Agent (WMA)								X					(U) Initiate TTA/Phase 3, Star Guard											X	
	<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>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>																																																																																																																																																											
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(U) Complete Broadsword Enhancements												X																																																																																																																																																									
(U) Initiate Web-Based Messaging Agent (WMA)								X																																																																																																																																																													
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Project 3481				Page 13 of 21 Pages				Exhibit R-2A (PE 0603260F)																																																																																																																																																													

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)

DATE February 2003

BUDGET ACTIVITY
04 - Advanced Component Development and Prototypes
(ACD&P)

PE NUMBER AND TITLE
0603260F Intelligence Advanced Development

PROJECT
3481

(U) E. Schedule Profile Continued

	<u>FY 2002</u>				<u>FY 2003</u>				<u>FY 2004</u>			
	1	2	3	4	1	2	3	4	1	2	3	4

(U) Initiate Information Operations Tool Access (IOTA)
 * - Denotes completed event
 X - Denotes planned event

X

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2003			
BUDGET ACTIVITY					PE NUMBER AND TITLE			PROJECT		
04 - Advanced Component Development and Prototypes (ACD&P)					0603260F Intelligence Advanced Development			3481		
(U) A. Project Cost Breakdown (\$ in Thousands)										
						<u>FY 2002</u>		<u>FY 2003</u>		<u>FY 2004</u>
(U)	Broadsword Enhancements					508		312		0
(U)	Trusted Transfer Agent (TTA): Phase 1, Reach Down; Phase 2, Reach Up; and initiation of Phase 3, Star Guard					453		370		305
(U)	WebTAS Transition into CAOC-X					353		320		0
(U)	Web-Based Messaging Agent (WMA)					0		288		342
(U)	Continuation of TTA: Phase 3, Star Guard (different ktr)					0		0		342
(U)	Information Operations Tool Access (IOTA)					0		0		342
(U)	Total					1,314		1,290		1,331
(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 2002</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget FY 2004</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Product Development Organizations</u>										
Synectics Corp (00-C-0073)	CPFF	3 Nov 00	N/A	1,102	300	508	312	0	0	1,120
Sterling Software (98-D-0013)	CPFF	27 Jan 00	N/A	1,328	200	453	370	305	0	1,328
Northrup Grumman (01-C-008)	CPFF	1 Feb 02	N/A	673	0	353	320	0	0	673
TBD	TBD	TBD	N/A	1,230	0	0	288	342	Continuing	TBD
TBD	TBD	TBD	N/A	792	0	0	0	342	Continuing	TBD
TBD	TBD	TBD	N/A	717	0	0	0	342	Continuing	TBD
<u>Support and Management Organizations</u>										
N/A										
Project 3481					Page 15 of 21 Pages			Exhibit R-3 (PE 0603260F)		

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2003		
BUDGET ACTIVITY 04 - Advanced Component Development and Prototypes (ACD&P)				PE NUMBER AND TITLE 0603260F Intelligence Advanced Development			PROJECT 3481		
(U) <u>Performing Organizations Continued:</u>									
<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>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 2002</u>									
<u>FY 2002</u>									
<u>FY 2003</u>									
<u>FY 2004</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>Subtotals</u>									
<u>to FY 2002</u>									
<u>FY 2002</u>									
<u>FY 2003</u>									
<u>FY 2004</u>									
<u>Complete</u>									
<u>Program</u>									
Subtotal Product Development				500	1,314	1,290	1,331	TBD	TBD
Subtotal Support and Management									
Subtotal Test and Evaluation									
Total Project				500	1,314	1,290	1,331	TBD	TBD

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)									DATE February 2003		
BUDGET ACTIVITY 04 - Advanced Component Development and Prototypes (ACD&P)					PE NUMBER AND TITLE 0603260F Intelligence Advanced Development				PROJECT 3482		
COST (\$ in Thousands)		FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
3482	Science & Tech Intelligence Methodology	1,783	1,032	1,060	1,088	1,098	1,118	1,134	1,152	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>NOTE: The CSAF Kill-Chain Enhancement Task Force directed and funded the Joint Targeting Toolbox (JTT) Integration Project in FY02. The project was one of three such projects in an overall effort to accelerate fielding of the JTT to the unit levels via Pre-Planned Product Improvement (P3I). The JTT Integration Project specifically integrated the Bomb Damage Assessment (BDA) and the Joint Continuous Strike Environment (JCSE) into the JTT.</p> <p>(U) <u>FY 2002 (\$ in Thousands)</u></p> <p>(U) \$0 Accomplishment/Planned Program</p> <p>(U) \$568 Continued Dynamic Info Ops Dev Environment (DIODE) for Enhanced Intel Prep of Battlespace (EIPB)</p> <p>(U) \$0 Transitioned Missile System Reentry Vehicle Algorithm Enhancements for NAIC to PE 64750</p> <p>(U) \$0 Transitioned Laser Weapons (LODUR) Threat Assessment Tool to PE64750</p> <p>(U) \$365 Continued Tel-Scope Situation Awareness</p> <p>(U) \$850 Initiated/Completed Joint Targeting Toolbox Integration (see NOTE in Mission Description above.)</p> <p>(U) \$1,783 Total</p> <p>(U) <u>FY 2003 (\$ in Thousands)</u></p> <p>(U) \$0 Accomplishment/Planned Program</p> <p>(U) \$258 Complete DIODE for EIPB</p> <p>(U) \$283 Initiate Joint DIODE Integration Tools</p> <p>(U) \$332 Continue Tel-Scope Situation Awareness</p> <p>(U) \$159 Initiate Joint IADS View</p> <p>(U) \$1,032 Total</p>											
Project 3482				Page 17 of 21 Pages				Exhibit R-2A (PE 0603260F)			

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)							DATE February 2003				
BUDGET ACTIVITY 04 - Advanced Component Development and Prototypes (ACD&P)				PE NUMBER AND TITLE 0603260F Intelligence Advanced Development				PROJECT 3482			
(U) <u>A. Mission Description Continued</u>											
(U) <u>FY 2004 (\$ in Thousands)</u>											
(U) \$0 Accomplishment/Planned Program											
(U) \$294 Complete Tel-Scope Situation Awareness											
(U) \$278 Continue Joint IADS View											
(U) \$319 Complete Joint DIODE Integration Tools											
(U) \$169 Initiate Automated Correspondence Analysis System (ACAS)											
(U) \$1,060 Total											
(U) <u>B. Project Change Summary</u>											
Not Applicable											
(U) <u>C. Other Program Funding Summary (\$ in Thousands)</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>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>	
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>		
(U) AF RDT&E											
(U) Other APPN											
None											
(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 2002</u>			<u>FY 2003</u>		<u>FY 2004</u>		
				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) Initiated/Completed Joint Targeting Toolbox Integration				*			*				
(U) Complete DIODE for EIPB									X		
(U) Initiate/Complete Joint DIODE Integration Tools							X				X
Project 3482	Page 18 of 21 Pages							Exhibit R-2A (PE 0603260F)			

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)										DATE February 2003												
BUDGET ACTIVITY					PE NUMBER AND TITLE					PROJECT												
04 - Advanced Component Development and Prototypes (ACD&P)					0603260F Intelligence Advanced Development					3482												
(U) E. Schedule Profile Continued																						
					<u>FY 2002</u>							<u>FY 2003</u>								<u>FY 2004</u>		
					1	2	3	4	1	2	3	4	1	2	3	4				2	3	4
(U)	Initiate Joint IADS View									X												
(U)	Complete Tel-Scope Situation Awareness																					X
(U)	Initiate Automated Correspondence Analysis System (ACAS)																				X	
	* - Denotes completed event																					
	X - Denotes planned event																					
Project 3482					Page 19 of 21 Pages					Exhibit R-2A (PE 0603260F)												

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2003			
BUDGET ACTIVITY					PE NUMBER AND TITLE			PROJECT		
04 - Advanced Component Development and Prototypes (ACD&P)					0603260F Intelligence Advanced Development			3482		
(U) A. Project Cost Breakdown (\$ in Thousands)										
						<u>FY 2002</u>		<u>FY 2003</u>		<u>FY 2004</u>
(U)	DIODE for Enhanced Intel Prep of the Battlespace (EIPB)					568		258		0
(U)	Tel-Scope Situation Awareness					365		332		294
(U)	Joint Targeting Toolbox Integration					850		0		0
(U)	Joint DIODE Integration Tools					0		283		319
(U)	Joint IADS View					0		159		278
(U)	Automated Correspondence Analysis System					0		0		169
(U)	Total					1,783		1,032		1,060
(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 2002</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget FY 2004</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Product Development Organizations</u>										
Zel-Tech (01-C-0048)	CPFF	6 Mar 01	N/A	1,026	200	568	258	0	0	1,026
PRC, Inc. (00-C-0045)	CPFF	1 Feb 01	N/A	1,091	100	365	332	294	0	1,091
Northrup-Grumman IT (F30602-00-D-0012)	CPFF	30 Nov 02	N/A	850	0	850	0	0	0	850
TBD	TBD	TBD	N/A	602	0	0	283	319	0	602
TBD	TBD	TBD	N/A	717	0	0	159	278	Continuing	TBD
TBD	TBD	TBD	N/A	769	0	0	0	169	Continuing	TBD
<u>Support and Management Organizations</u>										
N/A										
<u>Test and Evaluation Organizations</u>										
N/A										
Project 3482					Page 20 of 21 Pages			Exhibit R-3 (PE 0603260F)		

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2003		
BUDGET ACTIVITY 04 - Advanced Component Development and Prototypes (ACD&P)				PE NUMBER AND TITLE 0603260F Intelligence Advanced Development			PROJECT 3482		
(U) <u>Government Furnished Property:</u>									
<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>Vehicle</u>	<u>Obligation</u> <u>Date</u>	<u>Date</u>	<u>to FY 2002</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</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>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 2002</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>Complete</u>	<u>Program</u>
Subtotal Product Development				300	1,783	1,032	1,060	TBD	TBD
Subtotal Support and Management									
Subtotal Test and Evaluation									
Total Project				300	1,783	1,032	1,060	TBD	TBD

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE
February 2003

BUDGET ACTIVITY 04 - Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603287F Physical Security Equipment	PROJECT 5121
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COST (\$ in Thousands)	FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
5121 Physical Security Equipment	0	0	24,483	22,699	21,878	25,613	30,125	29,721	0	0
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

In FY 2004, this is a new PE, efforts were transferred from PE 0603228D8Z.

(U) A. Mission Description

This program supports the protection of tactical and nuclear weapons systems, DoD personnel and DoD facilities. The funds are used to provide PSE RDT&E for individual Service and Joint PSE requirements. The PSE program is organized so that an ongoing USAF-coordinated Joint Action Group, consisting of Army, Navy, Air Force, and Defense Threat Reduction Agency (DTRA) representatives monitors, directs and prioritizes potential and existing PSE programs. OSD program oversight, to be established by a Memorandum of Understanding, is to be provided by the Office of the Under Secretary of Defense, Acquisition, Technology and Logistics (AT&L), the Assistant Secretary of Defense for Command, Control and Communications (ASD(C3I)), and the Assistant to the Secretary of Defense for Nuclear and Chemical and Biological (ATSD(NCB)) programs. With few exceptions, each Service sponsors RDT&E efforts for technologies and programs that have multi-service application. This program element supports the Army's advanced engineering development of Interior and Exterior Detection, Security Lighting, Security Barriers and Security Display Units. In a like manner, the program element also supports the Air Force's PSE RDT&E effort in the areas of Exterior Detection/Surveillance, Entry Control, Delay/Denial, Tactical Systems and Airborne Intrusion. Finally, the program supports Navy RDT&E efforts in the areas of Waterside Security, Explosive Detection, and improved technology for Locks, Safes and Vaults. This PE includes funding for Force Protection Commercial-Off-The-Shelf (FP COTS) evaluation and testing, which has received focus since the 1996 Khobar Towers terrorist bombing incident. The FP COTS testing applies to all available technologies, which are considered effective for DoD use.

(U) FY 2002 (\$ in Thousands)

(U) \$0 This is a new Air Force program element. Effective October 1, 2003, funding for this program transfers from OUSD(AT&L) PE 0603228D8Z. Please refer to that PE for FY 2002 accomplishments.

(U) \$0 Total

(U) FY 2003 (\$ in Thousands)

(U) \$0 This is a new Air Force program element. Effective October 1, 2003, funding for this program transfers from OUSD(AT&L) PE 0603228D8Z. Please refer to that PE for FY 2003 plans.

(U) \$0 Total

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE February 2003

BUDGET ACTIVITY
04 - Advanced Component Development and Prototypes
(ACD&P)

PE NUMBER AND TITLE
0603287F Physical Security Equipment

PROJECT
5121

(U) A. Mission Description Continued

(U) FY 2004 (\$ in Thousands)

(U) \$24,483 AIRCRAFT SELF-PROTECTION SECURITY SYSTEM (0.500 million)
·Correct any deficiencies discovered during test and demonstration and prepare for production.

COMMON REMOTELY OPERATED WEAPON SYSTEM (CROWS) (0.200 million)
·Complete the Risk Reduction and Demonstration Phase
·Prepare for Production
·Correct any problems discovered during prototype testing.

DELAY/DENIAL (D/D) DEVELOPMENT/VALIDATION (0.900 million)
·Continue to manage D/D product developments.
·Continue to evaluate D/D COTS products.
·Continue to recommend new D/D technologies.

EXTERIOR PSE DEVELOPMENT/QUALIFICATION (0.925 million)
·Continue to manage sensor, access control, and assessment product developments.
·Continue to evaluate sensor, access control, and assessment COTS products.
·Continue to recommend new sensor, access control, and assessment technologies.

LEAP AHEAD PROGRAM (0.908 million)
·Continue to identify technological advances at DoD, DoE, University Labs, DARPA programs, etc., with PSE utility.
·Continue to respond/research FP Battlelab requests for information.
·Continue to prepare operational systems improvement plans. Develop technology roadmap. Update system architecture.

SMART GATE (0.775 million)
·Continue to test, develop, and integrate equipment to improve security and access to facilities.

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 2003
BUDGET ACTIVITY 04 - Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603287F Physical Security Equipment	PROJECT 5121
<p>(U) <u>A. Mission Description Continued</u></p> <p>(U) <u>FY 2004 (\$ in Thousands) Continued</u></p> <p>COMMERCIAL-OFF-THE-SHELF TESTING (5.216 million)</p> <ul style="list-style-type: none"> ·Procure and deliver COTS Force Protection Equipment in support of DoD urgent and compelling requirements for evaluation and testing. ·Publish appropriate reports and place them on the Force Protection and Physical Security Communities of Practice Portal. ·Update the User's Guide of commercially available Non Developmental Items for Force Protection users. ·Update methodology and publish test and evaluation schedule for FY 2004. ·Procure and test biometrics systems for integration into portals for greater identity assurance. ·Procure and test systems that reduce manpower and enhance security effectiveness. <p>TACTICAL AUTOMATED SECURITY SYSTEM (4.033 million)</p> <ul style="list-style-type: none"> ·Conduct testing of COTS products to add capabilities to the TASS suite of products. ·Award and perform technology enhancement ECPs to improve/provide new capabilities. ·Continue the miniaturization efforts to produce a system that is small, lightweight, and durable. ·Continue Annunciator efforts to provide a man-portable annunciation capability. ·Continue data communications efforts to increase capability and harden/secure data communications. ·Integrate entry control and annunciation capabilities. ·Continue efforts that increase the situational awareness for the operators. <p>WATERSIDE SECURITY SYSTEM (2.902 million)</p> <ul style="list-style-type: none"> ·Continue T&E of COTS technology at the 5000 Mike Pier integration facility. ·Support WSS operational sites. ·Complete work on the Joint US/UK Sonar RDT&E Project. ·Deploy new sonar technology at a US and UK operational site. ·Integrate teleconferencing, document control, e-learning technology into the KM Portal. ·Evaluate new waterside barrier technologies. ·Evaluate communications technologies for shipboard and waterfront applications. ·Install waterside barrier technology at Navy sites. 		
Project 5121	Page 3 of 8 Pages	Exhibit R-2 (PE 0603287F)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 2003
BUDGET ACTIVITY 04 - Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603287F Physical Security Equipment	PROJECT 5121
<p>(U) <u>A. Mission Description Continued</u></p> <p>(U) <u>FY 2004 (\$ in Thousands) Continued</u></p> <p>EXPLOSIVE DETECTION EQUIPMENT (4.908 million)</p> <ul style="list-style-type: none"> ·Conduct market surveys and investigations for COTS and developmental EDE to be further evaluated. ·Conduct laboratory and operational testing of several EDE technologies. ·Integrate COTS and developmental systems for the detection and identification of IEDs. ·Examine the most suitable combinations of EDE technologies, such as imaging and trace, to determine the most effective combination for the detection of explosives. ·Update the threat to DoD from IEDs. ·Continue to develop logistic support plans, summaries, operational manuals for selected COTS products. ·Update and maintain the EDE web site. <p>LOCKS, SAFES, VAULTS (1.716 million)</p> <ul style="list-style-type: none"> ·Update and publish guide specifications for security equipment (as needed). ·Develop and publish specification for label seals. ·Develop and implement testing/qualification procedures for label seals. ·Publish four Lock Program Newsletters. ·Test and evaluate forced entry resistance of selected weapon storage and magazine door systems. ·Support DoD locking system/security hardware procurement and troubleshooting requirements. ·Monitor, evaluate, and track problems and vulnerabilities associated with approved security equipment. ·Develop and publish cost effective methods to upgrade attack resistance of AA&E magazine door systems. ·Test and evaluate commercially available forced entry attack tools. ·Determine operational and security requirements for high security, biometrics/mechanical locking systems for protections of conventional and non-conventional arms, ammunition, & explosives, and classified information. ·Select and evaluate biometrics technology to be integrated into currently approved or developing high security locking / security systems <p>ELECTRONIC TRIP FLARE (1.500 million)</p> <ul style="list-style-type: none"> ·Conduct Operational Evaluation portion of Early User Appraisal by Army Research Laboratory Human Factors Field Element at the US Army Maneuver Support Center. 		
Project 5121	Page 4 of 8 Pages	Exhibit R-2 (PE 0603287F)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 2003																																																							
BUDGET ACTIVITY 04 - Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603287F Physical Security Equipment	PROJECT 5121																																																							
<p>(U) <u>A. Mission Description Continued</u></p> <p>(U) <u>FY 2004 (\$ in Thousands) Continued</u></p> <ul style="list-style-type: none"> ·Prepare Final Prototype Evaluation Report. ·Rewrite Operational Requirements Document to Update Analysis. <p>(U) \$24,483 Total</p> <p>(U) <u>B. Budget Activity Justification</u></p> <p>This program is a level 4 budget activity because of the need to evaluate, test and integrate developmental, non-developmental, and commercial equipment for the protection of DoD personnel and facilities, including nuclear assets and other critical weapon systems. This program supports the development of physical security equipment (PSE), including that equipment used for Force Protection, for all DoD Components.</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 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>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 style="text-align: center;">0</td> <td></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> <tr> <td>(U) Adjustments to Budget Years Since FY 2003 PBR</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">24,483</td> <td></td> </tr> <tr> <td>(U) Current Budget Submit/FY 2004 PBR</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">24,483</td> <td></td> </tr> </tbody> </table> <p>(U) <u>Significant Program Changes:</u></p> <p>OSD PBD 203C transferred funding for this existing program, along with PE 0604287F, from OUSD(AT&L) PE 0603228D8Z to the Air Force for management and execution, effective October 1, 2003.</p>				<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</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					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 2003 PBR	0	0	24,483		(U) Current Budget Submit/FY 2004 PBR	0	0	24,483	
	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</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																																																									
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d. Below Threshold Reprogram																																																									
e. Rescissions																																																									
(U) Adjustments to Budget Years Since FY 2003 PBR	0	0	24,483																																																						
(U) Current Budget Submit/FY 2004 PBR	0	0	24,483																																																						
Project 5121	Page 5 of 8 Pages	Exhibit R-2 (PE 0603287F)																																																							

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE February 2003	
BUDGET ACTIVITY 04 - Advanced Component Development and Prototypes (ACD&P)					PE NUMBER AND TITLE 0603287F Physical Security Equipment					PROJECT 5121	
(U) <u>D. Other Program Funding Summary (\$ in Thousands)</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>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>	
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>		
(U) AF RDT&E											
(U) Other APPN											
Not Applicable											
(U) <u>E. Acquisition Strategy</u>											
Not Applicable											
(U) <u>F. Schedule Profile</u>											
					<u>FY 2002</u>			<u>FY 2003</u>		<u>FY 2004</u>	
				1	2	3	4	1	2	3	4
(U) Not Applicable											

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2003			
BUDGET ACTIVITY					PE NUMBER AND TITLE			PROJECT		
04 - Advanced Component Development and Prototypes (ACD&P)					0603287F Physical Security Equipment			5121		
(U) A. Project Cost Breakdown (\$ in Thousands)										
					<u>FY 2002</u>			<u>FY 2003</u>		<u>FY 2004</u>
(U)	ASPSS				0			0		500
(U)	CROWS				0			0		200
(U)	Delay/Denial Demonstration/Validation				0			0		900
(U)	Exterior PSE Development/Qualification				0			0		925
(U)	Leap Ahead Program				0			0		908
(U)	Smart Gate (a.k.a. SAFE Gate)				0			0		775
(U)	COTS				0			0		5,216
(U)	TASS				0			0		4,033
(U)	WSS				0			0		2,902
(U)	EDE				0			0		4,908
(U)	Locks, Safes, Vaults				0			0		1,716
(U)	ETF				0			0		1,500
(U)	Total				0			0		24,483
(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 2002</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget FY 2004</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>										
HQ ESC (Air Force)	MIPR	1 Nov 03						9,980		9,980
PM-PSE (US Army)	MIPR	1 Nov 03						3,238		3,238
CNO-N34 (US Navy)	MIPR	1 Nov 03						11,265		11,265
<u>Support and Management Organizations</u>										
<u>Test and Evaluation Organizations</u>										

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)				DATE February 2003					
BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT	
04 - Advanced Component Development and Prototypes (ACD&P)				0603287F Physical Security Equipment				5121	
(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 2002</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>Complete</u>	<u>Program</u>
<u>Product Development Property</u>									
Not Applicable									
<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 2002</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>Complete</u>	<u>Program</u>
Not Applicable									
Subtotal Product Development							24,483		24,483
Subtotal Support and Management									
Subtotal Test and Evaluation									
Total Project							24,483		24,483

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE
February 2003

BUDGET ACTIVITY
04 - Advanced Component Development and Prototypes
(ACD&P)

PE NUMBER AND TITLE
0603421F GLOBAL POSITIONING SYSTEM
PROJECT
4993

COST (\$ in Thousands)		FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
4993	GPS BLOCK III	62,998	55,580	0	40,674	180,513	291,634	779,847	792,797	Continuing	TBD
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

(U) A. Mission Description

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 Space and Control Segments. 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, control segment 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, system 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 2002 (\$ in Thousands)

- (U) \$0** Accomplishments/Planned Program
- (U) \$4,700** Continued GPS Modernization Stewardship
- (U) \$3,691** Continued Program Support for GPS III/Modernization
- (U) \$54,607** Continued GPS III/Modernization Development
- (U) \$62,998** Total

(U) FY 2003 (\$ in Thousands)

- (U) \$0** Accomplishments/Planned Program
- (U) \$4,600** Continue GPS Modernization Stewardship
- (U) \$4,121** Continue Program Support for GPS III/Modernization
- (U) \$46,859** Continue GPS III/Modernization Development

Project 4993

Page 1 of 6 Pages

Exhibit R-2 (PE 0603421F)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 2003																																																							
BUDGET ACTIVITY 04 - Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603421F GLOBAL POSITIONING SYSTEM	PROJECT 4993																																																							
<p>(U) <u>A. Mission Description Continued</u></p> <p>(U) <u>FY 2003 (\$ in Thousands) Continued</u></p> <p>(U) \$55,580 Total</p> <p>(U) <u>FY 2004 (\$ in Thousands)</u></p> <p>(U) \$0 Accomplishments/Planned Program</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 Budget Activity 4 - Advanced Component Development and Prototypes because it is a Key Decision Point (KDP) B effort</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 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>Total Cost</u></th> </tr> </thead> <tbody> <tr> <td>(U) Previous President's Budget</td> <td style="text-align: center;">76,960</td> <td style="text-align: center;">100,217</td> <td style="text-align: center;">183,767</td> <td style="text-align: center;">TBD</td> </tr> <tr> <td>(U) Appropriated Value</td> <td style="text-align: center;">78,358</td> <td style="text-align: center;">60,217</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;">-1,705</td> <td style="text-align: center;">-637</td> <td></td> <td></td> </tr> <tr> <td> b. Small Business Innovative Research</td> <td style="text-align: center;">-3,634</td> <td></td> <td></td> <td></td> </tr> <tr> <td> c. Omnibus or Other Above Threshold Reprogram</td> <td></td> <td style="text-align: center;">-4,000</td> <td></td> <td></td> </tr> <tr> <td> d. Below Threshold Reprogram</td> <td style="text-align: center;">-10,021</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 2003 PBR</td> <td></td> <td></td> <td style="text-align: center;">-183,767</td> <td></td> </tr> <tr> <td>(U) Current Budget Submit/FY 2004 PBR</td> <td style="text-align: center;">62,998</td> <td style="text-align: center;">55,580</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> The GPS III program has been restructured to focus on supporting an FY12 first launch.</p>				<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>Total Cost</u>	(U) Previous President's Budget	76,960	100,217	183,767	TBD	(U) Appropriated Value	78,358	60,217			(U) Adjustments to Appropriated Value					a. Congressional/General Reductions	-1,705	-637			b. Small Business Innovative Research	-3,634				c. Omnibus or Other Above Threshold Reprogram		-4,000			d. Below Threshold Reprogram	-10,021				e. Rescissions					(U) Adjustments to Budget Years Since FY 2003 PBR			-183,767		(U) Current Budget Submit/FY 2004 PBR	62,998	55,580	0	TBD
	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>Total Cost</u>																																																					
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Project 4993	Page 2 of 6 Pages	Exhibit R-2 (PE 0603421F)																																																							

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									DATE February 2003	
BUDGET ACTIVITY 04 - Advanced Component Development and Prototypes (ACD&P)					PE NUMBER AND TITLE 0603421F GLOBAL POSITIONING SYSTEM				PROJECT 4993	
(U) D. Other Program Funding Summary (\$ in Thousands)										
	<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>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E										
(U) PE 0305165F NAVSTAR GPS (Space & Ground)	183,569	285,415	146,468	129,933	107,134	84,752	43,677	39,696	Continuing	TBD
(U) Other APPN										
(U) Operations and Maintenance (PE 0305165F, BA 1 - Operating Forces, SAG 13D)	44,312	57,956	53,205	63,639	66,373	77,103	80,289	83,956	Continuing	TBD
(U) Missile Procurement (PE 0305165F, BA 5-Space and Other Support, P-19, 20)	161,948	226,336	258,852	334,878	342,189	266,243	131,960	82,145	Continuing	TBD
(U) Other Procurement (PE 0305165F, BP 83-Electronics and Telecommunications Equipment, WSC 6790, P-62 and WSC 6730; BP 86 - Spares & Repair Parts WSC 190A, P-106)	10,345	13,403	12,589	13,344	13,583	12,046	10,316	22,715	Continuing	TBD
(U) Related R,D,T&E										
(U) PE 0305164F, GPS User Equipment										
(U) PE 0305913F, Nuclear Detonation System (NDS)										

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 2003																																																																																											
BUDGET ACTIVITY 04 - Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603421F GLOBAL POSITIONING SYSTEM	PROJECT 4993																																																																																											
<p>(U) <u>E. Acquisition Strategy</u> 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-KDP-B, similar to Component Advanced Development) followed by a successful Key Decision Point B (KDP-B) not earlier than FY05. The GPS JPO will release an RFP following KDP-B to conduct a Full and Open Competition. The scope of this competitive award will be determined during 2QFY03 reviews with USecAF. Program options to reduce cycle time and to support an ILC in FY12 are being developed.</p>																																																																																													
<p>(U) <u>F. Schedule Profile</u></p> <table style="width:100%; border: none;"> <thead> <tr> <th style="width: 10%;"></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> <th colspan="4" style="text-align: center;"><u>FY 2004</u></th> </tr> <tr> <th style="text-align: left;"></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) SA/RD Contract Completion (original effort)</td> <td style="text-align: center;">*</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) Concept Defn & Risk Reduction Studies Complete (initial work)</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) USecAF Program Review</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) Note: No program events planned in FY04</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 colspan="13">* = Completed Event, X = Scheduled Event</td> </tr> </tbody> </table>				<u>FY 2002</u>				<u>FY 2003</u>				<u>FY 2004</u>					1	2	3	4	1	2	3	4	1	2	3	4	(U) SA/RD Contract Completion (original effort)	*												(U) Concept Defn & Risk Reduction Studies Complete (initial work)													(U) USecAF Program Review													(U) Note: No program events planned in FY04													* = Completed Event, X = Scheduled Event												
	<u>FY 2002</u>				<u>FY 2003</u>				<u>FY 2004</u>																																																																																				
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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 2003			
BUDGET ACTIVITY					PE NUMBER AND TITLE			PROJECT		
04 - Advanced Component Development and Prototypes (ACD&P)					0603421F GLOBAL POSITIONING SYSTEM			4993		
(U) A. Project Cost Breakdown (\$ in Thousands)										
						<u>FY 2002</u>		<u>FY 2003</u>		<u>FY 2004</u>
(U)	GPS III/Modernization Development					54,607		46,859		0
(U)	JPO Support for GPS III/ Modernization					3,691		4,121		0
(U)	GPS Modernization Stewardship					4,700		4,600		0
(U)	Total					62,998		55,580		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 2002</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget FY 2004</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Product Development Organizations</u>										
Concept Defn and Risk Reduction	Various				0	11,260	0	0	0	11,260
GPS III/Modernization System Engineering & Technical Support	Various				0	43,347	46,859	0	Continuing	TBD
<u>Support and Management Organizations</u>										
JPO Support for GPS III / Modernization	Various				0	3,691	4,121	0	Continuing	TBD
GPS Modernization Stewardship	Various		N/A	N/A	0	4,700	4,600	0	Continuing	TBD
<u>Test and Evaluation Organizations</u>										
Project 4993					Page 5 of 6 Pages			Exhibit R-3 (PE 0603421F)		

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)				DATE February 2003		
BUDGET ACTIVITY		PE NUMBER AND TITLE			PROJECT	
04 - Advanced Component Development and Prototypes (ACD&P)		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 2002</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>Complete</u>
						<u>Total</u>
						<u>Program</u>
<u>Subtotals</u>						
Subtotal Product Development		0	54,607	46,859	0	TBD
Subtotal Support and Management		0	8,391	8,721	0	TBD
Subtotal Test and Evaluation						
Total Project		0	62,998	55,580	0	TBD

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE February 2003	
BUDGET ACTIVITY 04 - Advanced Component Development and Prototypes (ACD&P)					PE NUMBER AND TITLE 0603430F Advanced (EHF MILSATCOM (Space)					PROJECT 4050	
COST (\$ in Thousands)		FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
4050	Advanced MILSATCOM	459,631	822,477	778,078	573,652	402,398	317,428	189,563	130,898	142,100	4,310,915
	Quantity of RDT&E Articles	0	0	0	0	0	1	1	0	0	2
<p>(U) <u>A. Mission Description</u> Develop and acquire Advanced Extremely High Frequency (AEHF) Military Satellite Communications (MILSATCOM) satellites, mission control segment and cryptography 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. Additionally, this program focuses on leveraging commercial technology to the maximum extent possible. On 10 October 2001, a Milestone B decision was approved by the Defense Acquisition Executive to enter the System Development and Demonstration (SDD) phase. The SDD letter contract was awarded in Nov 01 and was definitized in Aug 02. The program is a sole source acquisition to a contractor team comprised of Lockheed Martin (prime/integrator) and Northrup-Grumman (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 International Partners: Canada, the United Kingdom, and The Netherlands.</p> <p>(U) <u>FY 2002 (\$ in Thousands)</u></p> <p>(U) \$0 Accomplishment/Planned Program</p> <p>(U) \$397,284 Began SDD of the AEHF satellites and Mission Control Segment (MCS) and began build of Satellite Engineering Development Models and Brassboards</p> <p>(U) \$33,990 Continued Satellite Cryptographic Development</p> <p>(U) \$25,000 Continued Program Office and other related support activities</p> <p>(U) \$3,357 Continued Joint Terminal Engineering Office (JTEO) Support</p> <p>(U) \$459,631 Total</p> <p>(U) <u>FY 2003 (\$ in Thousands)</u></p> <p>(U) \$0 Accomplishment/Planned Program</p> <p>(U) \$750,787 Continue SDD of the AEHF satellites and MCS, continue build of Satellite Engineering Development Models and Brassboards, and complete initial software increments for bus, payload and MCS</p> <p>(U) \$23,690 Continue Satellite Cryptographic Development</p>											
Project 4050		Page 1 of 6 Pages					Exhibit R-2 (PE 0603430F)				

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 2003																																																		
BUDGET ACTIVITY 04 - Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603430F Advanced (EHF MILSATCOM (Space)	PROJECT 4050																																																		
<p>(U) <u>A. Mission Description Continued</u></p> <p>(U) <u>FY 2003 (\$ in Thousands) Continued</u></p> <p>(U) \$25,500 Continue Program Office and other related support activities</p> <p>(U) \$3,500 Continue JTEO Support (Starting in FY04, the JTEO effort will transfer to PE 0303601F, MILSATCOM Terminals)</p> <p>(U) \$19,000 Qualification and productization of Radiation-Hardened components for USAF/DOD space programs</p> <p>(U) \$822,477 Total</p> <p>(U) <u>FY 2004 (\$ in Thousands)</u></p> <p>(U) \$0 Accomplishment/Planned Program</p> <p>(U) \$717,064 Continue SDD of the AEHF satellites and MCS, begin build of Satellite 1 and 2 flight hardware, and begin Intermediate Software increments for bus, payload and MCS</p> <p>(U) \$16,390 Continue Satellite Cryptographic Development</p> <p>(U) \$25,624 Continue Program Office and related support activities</p> <p>(U) \$19,000 Qualification and productization of Radiation-Hardened components for USAF/DOD space programs</p> <p>(U) \$778,078 Total</p> <p>(U) <u>B. Budget Activity Justification</u> This program is in Budget Activity 4, Advanced Component Development and Prototypes, since it funds Advanced EHF technology validation and modeling.</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 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>Total Cost</u></th> </tr> </thead> <tbody> <tr> <td>(U) Previous President's Budget</td> <td style="text-align: right;">479,659</td> <td style="text-align: right;">825,783</td> <td style="text-align: right;">617,688</td> <td style="text-align: right;">3,837,743</td> </tr> <tr> <td>(U) Appropriated Value</td> <td style="text-align: right;">479,659</td> <td style="text-align: right;">844,783</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: right;">-2,244</td> <td style="text-align: right;">-12,836</td> <td></td> <td></td> </tr> <tr> <td style="padding-left: 20px;">b. Small Business Innovative Research</td> <td style="text-align: right;">-17,784</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 style="text-align: right;">-9,470</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 2003 PBR</td> <td></td> <td></td> <td style="text-align: right;">160,390</td> <td style="text-align: right;">160,390</td> </tr> </tbody> </table>				<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>Total Cost</u>	(U) Previous President's Budget	479,659	825,783	617,688	3,837,743	(U) Appropriated Value	479,659	844,783			(U) Adjustments to Appropriated Value					a. Congressional/General Reductions	-2,244	-12,836			b. Small Business Innovative Research	-17,784				c. Omnibus or Other Above Threshold Reprogram		-9,470			d. Below Threshold Reprogram					e. Rescissions					(U) Adjustments to Budget Years Since FY 2003 PBR			160,390	160,390
	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>Total Cost</u>																																																
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Project 4050	Page 2 of 6 Pages	Exhibit R-2 (PE 0603430F)																																																		

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE
February 2003

BUDGET ACTIVITY 04 - Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603430F Advanced (EHF MILSATCOM (Space))	PROJECT 4050
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(U) **C. Program Change Summary (\$ in Thousands) Continued**

	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>Total Cost</u>
(U) Current Budget Submit/FY 2004 PBR	459,631	822,477	778,078	4,310,915

(U) **Significant Program Changes:**

FY04 funding increased due to revised cost estimates and increased funding for qualification and productization of Radiation-Hardened components for USAF/DOD space programs.

(U) **D. Other Program Funding Summary (\$ in Thousands)**

	<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>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Related Proc:										
(U) MPAF, PE 0303604F, Advanced EHF	0	0	0	95,000	377,055	0	11,758	15,058	16,043	514,914
(U) RDT&E, PE 0603854F, Wideband MILSATCOM (Space), Project #4870, CCS-C	16,543	11,836	36,686	20,350	8,292	7,013	5,704	6,347	0	122,318
(U) OPAF, PE 03033600F Wideband Gapfiller System, Project #836780, CCS-C	0	5,543	8,109	2,135	289	0	0	0	0	16,076
(U) RDT&E, PE 0303601F, MILSATCOM Terminals, BA-7, R-174	38,751	71,293	173,831	241,906	238,037	174,566	218,886	229,486		TBD

(U) **E. Acquisition Strategy**

The Advanced MILSATCOM, also known as Advanced EHF (AEHF), program is a sole source acquisition to a contractor team comprised of Lockheed Martin (prime/integrator) and Northrup-Grumman (provider of the satellite payload). This team will perform the System Development and Demonstration (SDD) of three satellites and associated mission command and control ground capabilities under Cost Plus Award Fee line items 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.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE February 2003			
BUDGET ACTIVITY					PE NUMBER AND TITLE					PROJECT			
04 - Advanced Component Development and Prototypes (ACD&P)					0603430F Advanced (EHF MILSATCOM (Space))					4050			
(U) <u>F. Schedule Profile</u>													
		<u>FY 2002</u>				<u>FY 2003</u>				<u>FY 2004</u>			
		1	2	3	4	1	2	3	4	1	2	3	4
(U)	Milestone B - DAB	*											
(U)	Milestone C (KDP-C)											X	
(U)	Award SDD Contract	*											
(U)	Start build of Engineering Development Models	*											
(U)	Complete Ground Software System Design						X						
(U)	Begin build of satellites 1 and 2 flight hardware									X			
(U)	Cryptographic Unit Deliveries												X
(U)	System Critical Design Review (CDR)											X	
(U)	First Launch - (FY07)												
	* = Completed Events												
	X = Planned Events												
	Note: System CDR slipped from 4th Qtr FY03 to 3rd Qtr FY04 due to the impact of incorporation of the NSA-directed Dual Key design and revised cost estimates.												
Project 4050				Page 4 of 6 Pages				Exhibit R-2 (PE 0603430F)					

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2003				
BUDGET ACTIVITY					PE NUMBER AND TITLE			PROJECT			
04 - Advanced Component Development and Prototypes (ACD&P)					0603430F Advanced (EHF MILSATCOM (Space))			4050			
(U) A. Project Cost Breakdown (\$ in Thousands)											
						<u>FY 2002</u>		<u>FY 2003</u>		<u>FY 2004</u>	
(U)	Program Office Support					25,000		25,500		25,624	
(U)	Cryptographic Development					33,990		23,690		16,390	
(U)	Satellite SDD					397,284		750,787		717,064	
(U)	Joint Terminal Engineering Office (JTEO)					3,357		3,500		0	
(U)	Radiation Hardened parts program					0		19,000		19,000	
(U)	Total					459,631		822,477		778,078	
(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 2002</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget FY 2004</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Product Development Organizations</u>											
	NSA	MIPR	Dec 99	105,522	105,522	34,692	33,990	23,690	16,390	0	108,762
	JTEO	PR	Continuing	15,491	15,491	8,634	3,357	3,500	0	0	15,491
	MIT/LL	MIPR	Feb 95	4,988	4,988	4,988	0	0		0	4,988
	Hughes	CPFF	May 97	67,175	67,175	67,175	0	0		0	67,175
	TRW	CPFF	May 97	62,083	62,083	62,083	0	0		0	62,083
	Various	Various	95-01	N/A	N/A	66,659	0	0		0	66,659
	Lockheed Martin (Pre-EMD)	FFP	Oct 00	225,011	225,011	225,011	0	0		0	225,011
	Hughes	FFP	Oct 00	0	0	0	0	0		0	0
	SDD Contractor (Lockheed Martin)	CPAF	Oct 01	3,360,604	3,360,604	0	397,284	750,787	717,064	1,495,469	3,360,604
	Radiation Hardened parts developers	Various	03-09	143,205	143,205	0	0	19,000	19,000	105,205	143,205

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)								DATE February 2003		
BUDGET ACTIVITY					PE NUMBER AND TITLE				PROJECT	
04 - Advanced Component Development and Prototypes (ACD&P)					0603430F Advanced (EHF MILSATCOM (Space))				4050	
(U) <u>Performing Organizations Continued:</u>										
<u>Support and Management Organizations</u>										
Various	Various	Continuing	N/A	N/A	25,448	25,000	25,500	25,624	155,364	256,936
<u>Test and Evaluation Organizations</u>										
(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 2002</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</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 2002</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>Complete</u>	<u>Program</u>
Subtotal Product Development					469,242	434,631	796,977	752,454	1,600,674	4,053,978
Subtotal Support and Management					25,448	25,000	25,500	25,624	155,364	256,936
Subtotal Test and Evaluation										
Total Project					494,690	459,631	822,477	778,078	1,756,038	4,310,914

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

February 2003

BUDGET ACTIVITY

04 - Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603432F Polar MILSATCOM (Space)

COST (\$ in Thousands)	FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	21,380	19,347	5,580	963	0	0	0	0	0	297,572
4052 Polar Satellite Communications	21,380	19,347	5,580	963	0	0	0	0	0	297,572
A005 National Strategic SATCOM System (NSSS)	0	0	0	0	0	0	0	0	0	0
Quantity of RDT&E Articles	0	0	1	0	1	0	0	0	0	0

In FY 2003, Project A005, National Strategic SATCOM System (NSSS) was terminated. NSSS will be addressed via the Transformational Communication Architecture. Advanced Polar System (PE 0604635F) will satisfy north polar region requirements beginning in FY09.

(U) A. Mission Description

This program element provides for continued acquisition of the Interim Polar system to provide protected communications (anti jam, anti scintillation, and low probability of intercept) for tactical users in the north polar region.

Project 4052, Polar Satellite Communications, continues funding the addition of scaled-down low data rate Milstar packages onto 3 classified host satellites as an expedited, interim solution to protected connectivity requirements in the north polar region.

(U) B. Budget Activity Justification

The Polar MILSATCOM program is in Budget Activity 4, Advanced Component Development and Prototypes, based on the 30 Mar 95 USD(A&T) memorandum to pursue the interim hosted solution (Interim Polar).

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 2003			
BUDGET ACTIVITY 04 - Advanced Component Development and Prototypes (ACD&P)		PE NUMBER AND TITLE 0603432F Polar MILSATCOM (Space)			
(U) C. Program Change Summary (\$ in Thousands)					
		<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>Total Cost</u>
(U)	Previous President's Budget	18,539	19,554	80,683	1,515,051
(U)	Appropriated Value	18,724	19,554		
(U)	Adjustments to Appropriated Value				
	a. Congressional/General Reductions	-185	-207		
	b. Small Business Innovative Research				
	c. Omnibus or Other Above Threshold Reprogram	-1,100			
	d. Below Threshold Reprogram	4,047			
	e. Rescissions	-106			
(U)	Adjustments to Budget Years Since FY 2003 PBR			-75,103	
(U)	Current Budget Submit/FY 2004 PBR	21,380	19,347	5,580	297,572
(U)	<u>Significant Program Changes:</u>				
	FY02: Increased Polar Satellite Communications funding for program cost growth at classified host program office.				
	FY04: Reflects decision to fulfill NSSS mission with combination of other strategic satellites (APS, AEHF, Transformational Communications Architecture).				

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)									DATE February 2003	
BUDGET ACTIVITY 04 - Advanced Component Development and Prototypes (ACD&P)					PE NUMBER AND TITLE 0603432F Polar MILSATCOM (Space)				PROJECT 4052	
COST (\$ in Thousands)	FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
4052 Polar Satellite Communications	21,380	19,347	5,580	963	0	0	0	0	0	297,572
<p>FY03: Added \$9,872 from Project A005, National Strategic SATCOM System to address Project 4052 overrun. NSSS will be addressed via the Transformational Communication Architecture. Advanced Polar System (PE 0604635F) will satisfy north polar region requirements beginning in FY09.</p> <p>(U) <u>A. Mission Description</u> This project (often referred to as Interim Polar) is currently acquiring protected communications services for warfighters operating in the northern polar region. It is adjunct to Milstar based on the 1995 JROC approved Polar ORD that contains a subset of requirements requiring expedited solution. The expedited program adds small Milstar-compatible packages to 3 classified host satellites to provide limited requirements satisfaction while a long term solution is pursued. The first hosted package was launched in 1997, the last two will be available in FY04 and FY06.</p> <p>Note: The Air Force has continued updating the 95 ORD and defining a follow-on program -- new start project A010 in PE 0604435F called the Advanced Polar System (APS).</p> <p>(U) <u>FY 2002 (\$ in Thousands)</u> (U) \$0 Accomplishment/Planned Program (U) \$21,380 Continued to assemble payload and integrate with host vehicle for Interim Polar packages 2 and 3. (Through the classified host contract) (U) \$21,380 Total</p> <p>(U) <u>FY 2003 (\$ in Thousands)</u> (U) \$0 Accomplishment/Planned Program (U) \$19,347 Assemble payload and integrate with host vehicle for Interim Polar packages 2 and 3. (Through the classified host contract) (U) \$19,347 Total</p> <p>(U) <u>FY 2004 (\$ in Thousands)</u> (U) \$0 Accomplishment/Planned Program (U) \$5,580 Complete Polar package 3 integration with host vehicle. (Through the classified host contract) (U) \$5,580 Total</p>										
Project 4052			Page 3 of 6 Pages				Exhibit R-2A (PE 0603432F)			

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)							DATE February 2003																																																																																												
BUDGET ACTIVITY 04 - Advanced Component Development and Prototypes (ACD&P)				PE NUMBER AND TITLE 0603432F Polar MILSATCOM (Space)			PROJECT 4052																																																																																												
<p>(U) <u>B. Project Change Summary</u> Maintains development and integration of final two EHF packages on two host satellites due to be launched and available in FY04 and FY06.</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 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>FY 2008</u></th> <th style="text-align: center;"><u>FY 2009</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>Estimate</u></th> <th style="text-align: center;"><u>Estimate</u></th> <th style="text-align: center;"><u>Estimate</u></th> <th style="text-align: center;"><u>Estimate</u></th> <th style="text-align: center;"><u>Estimate</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) None.</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td colspan="11">The Navy has used its own PE(s) to modify control systems and terminals to work with Interim Polar.</td> </tr> <tr> <td colspan="11"> <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-collapse: collapse;"> <thead> <tr> <th></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> <th colspan="3" style="text-align: center;"><u>FY 2004</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 and 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> </td> </tr> </tbody></table>										<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>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>		<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>		(U) None.											The Navy has used its own PE(s) to modify control systems and terminals to work with Interim Polar.											<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-collapse: collapse;"> <thead> <tr> <th></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> <th colspan="3" style="text-align: center;"><u>FY 2004</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 and 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 2002</u>			<u>FY 2003</u>			<u>FY 2004</u>				1	2	3	4	1	2	3	4	1	2	3	4	(U) Acquisition activities and dates are classified												
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(U) None.																																																																																																			
The Navy has used its own PE(s) to modify control systems and terminals to work with Interim Polar.																																																																																																			
<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-collapse: collapse;"> <thead> <tr> <th></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> <th colspan="3" style="text-align: center;"><u>FY 2004</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 and 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 2002</u>			<u>FY 2003</u>			<u>FY 2004</u>				1	2	3	4	1	2	3	4	1	2	3	4	(U) Acquisition activities and dates are classified																																																																	
	<u>FY 2002</u>			<u>FY 2003</u>			<u>FY 2004</u>																																																																																												
	1	2	3	4	1	2	3	4	1	2	3	4																																																																																							
(U) Acquisition activities and dates are classified																																																																																																			

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2003				
BUDGET ACTIVITY					PE NUMBER AND TITLE			PROJECT			
04 - Advanced Component Development and Prototypes (ACD&P)					0603432F Polar MILSATCOM (Space)			4052			
(U) A. Project Cost Breakdown (\$ in Thousands)											
						<u>FY 2002</u>		<u>FY 2003</u>		<u>FY 2004</u>	
(U)	Packages 2 & 3 Payload/Integration Development					21,380		19,347		5,580	
(U)	Total					21,380		19,347		5,580	
(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 2002</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget FY 2004</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Product Development Organizations</u>										
	Classified	Classified	June 95	285,301	285,301	250,302	21,380	19,347	5,580	963	297,572
	<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 2002</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget FY 2004</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										

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)				DATE February 2003		
BUDGET ACTIVITY		PE NUMBER AND TITLE			PROJECT	
04 - Advanced Component Development and Prototypes (ACD&P)		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 2002</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>Complete</u>
<u>Subtotals</u>						<u>Total</u>
Subtotal Product Development		250,302	21,380	19,347	5,580	963
Subtotal Support and Management						
Subtotal Test and Evaluation						
Total Project		250,302	21,380	19,347	5,580	963
						297,572
						297,572

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE
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BUDGET ACTIVITY 04 - Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603434F National Polar-Orbiting Operational Environmental Satellite System (NPOESS)	PROJECT 4056
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COST (\$ in Thousands)	FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
4056 National Polar-orbiting Operational Env. Sat. Syst.	151,135	232,082	267,716	297,668	236,563	224,503	103,626	85,921	271,450	2,145,146
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	2	2

This table represents only a portion of the Air Force share of the NPOESS program, which is 50/50 funded by the Departments of Defense and Commerce. Total program funding is listed in section D, Other Program Funding Summary.

(U) A. Mission Description

Presidential Decision Directive/NSTC-2 (May 1994) directs the Department of Defense (DoD), Department of Commerce (DOC), and the National Aeronautics and Space Administration (NASA) to establish a converged national polar-orbiting weather satellite program. The Air Force (DoD) and NOAA (DOC) fund NPOESS 50/50 (by year) at the total program level. However, apportionment of DoD and DOC funds to specific activities does not have to be 50/50 and is at the program office discretion. 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 nautical miles (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. On 23 August 2002, NPOESS entered Key Decision Point C/Acquisition and Operations (A&O) phase. In FY03, the design of the Global Positioning System Occultation Sensor (GPSOS) will be funded with NOAA Procurement, Acquisition, and Construction (PAC) funding.

(U) FY 2002 (\$ in Thousands)

- (U) \$0** Accomplishments/Planned Program
- (U) \$907** Continued program office support for Program Definition and Risk Reduction (PDRR) efforts.
- (U) \$40,000** 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.
- (U) \$104,728** Continued critical Visible Infrared Imager Radiometer Suite (VIIRS), Conical-scanning Microwave Imager Sounder (CMIS), Cross-track

Project 4056

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Exhibit R-2 (PE 0603434F)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 2003			
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT			
04 - Advanced Component Development and Prototypes (ACD&P)	0603434F National Polar-Orbiting Operational Environmental Satellite System (NPOESS)	4056			
(U) <u>A. Mission Description Continued</u>					
(U) <u>FY 2002 (\$ in Thousands) Continued</u>					
	Infrared Sounder (CrIS), Ozone Mapping and Profile Suite (OMPS), and GPS Occultation Sensor (GPSOS) and associated algorithm development efforts and sensor design and fabrication for risk reduction missions and then transition them to the Shared System Performance Responsibility (SSPR) contract to continue A&O (which includes production).				
(U) \$5,500	Initiated System A&O effort including ground and space system development, design and fabrication for risk reduction missions.				
(U) \$151,135	Total				
(U) <u>FY 2003 (\$ in Thousands)</u>					
(U) \$0	Accomplishments/Planned Program				
(U) \$925	Continue DoD funded program office support for Acquisition and Operations (A&O) efforts.				
(U) \$231,157	Continue System A&O effort including ground and space system development, design and fabrication for risk reduction missions.				
(U) \$232,082	Total				
(U) <u>FY 2004 (\$ in Thousands)</u>					
(U) \$0	Accomplishments/Planned Program				
(U) \$944	Continue DoD funded program office support for A&O efforts.				
(U) \$266,772	Continue System A&O effort including ground and space system development, design and fabrication for risk reduction missions.				
(U) \$267,716	Total				
(U) <u>B. Budget Activity Justification</u>					
Currently, this PE is in Budget Activity 4 (Advance Component Development and Prototypes) because it supported sensor and satellite bus development. In Aug 02, the NPOESS program was approved to enter KDP-C A&O phase at the Defense Space Acquisition Board (DSAB). KDP-C is equivalent to a DoD 5000 milestone B. As a result, the BA is in the process of being changed to BA05.					
(U) <u>C. Program Change Summary (\$ in Thousands)</u>					
		<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>Total Cost</u>
(U) Previous President's Budget		155,834	237,199	306,532	1,925,328
(U) Appropriated Value		157,394	237,199		
(U) Adjustments to Appropriated Value					
a. Congressional/General Reductions		-2,301	-2,508		-4,068
Project 4056					

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE
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BUDGET ACTIVITY 04 - Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603434F National Polar-Orbiting Operational Environmental Satellite System (NPOESS)	PROJECT 4056
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(U) <u>C. Program Change Summary (\$ in Thousands) Continued</u>				
		<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>
				<u>Total Cost</u>
b. Small Business Innovative Research		-9,458		-9,458
c. Omnibus or Other Above Threshold Reprogram			-2,609	-2,609
d. Below Threshold Reprogram		5,500		5,500
e. Rescissions				-741
(U) Adjustments to Budget Years Since FY 2003 PBR				228,585
(U) Current Budget Submit/FY 2004 PBR		151,135	232,082	267,716
				2,145,146

(U) **Significant Program Changes:**
Adjustments are due to 6 month delay in A&O contract downselect, addition of Aerosol sensor, improved estimate of software development costs, and program restructure to delay delivery of the first NPOESS satellite.

(U) <u>D. Other Program Funding Summary (\$ in Thousands)</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>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Related NOAA PAC	157,400	237,250	276,700	317,246	358,185	318,649	249,856	237,400	909,011	3,334,133
Funding: Polar Convergence*										
(U) Total NPOESS Air Force	151,135	232,082	267,716	297,668	246,805	330,093	390,381	232,511	1,206,740	3,629,613
(U) Related NPOESS MPAF: PE0305178F					10,242	30,590	286,755	71,590	469,490	868,667
(U) Related EELV MPAF: PE0305953F**						75,000	0	75,000	225,000	375,000
(U) Other operations and sustainment funding***									240,800	240,800

* 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 \$272,436K. Total NPOESS program cost is the sum of NPOESS RDT&E AF0603434F, 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.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE
February 2003

BUDGET ACTIVITY
04 - Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE
0603434F National Polar-Orbiting Operational Environmental Satellite System (NPOESS)

PROJECT
4056

(U) **D. Other Program Funding Summary (\$ in Thousands)**

	<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>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	

** NPOESS Launch vehicle funding is budgeted entirely in EELV PE 0305953F, and represents a portion of the DoD's 50% funding contribution in specific years.
 *** 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.

(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 WindSat/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 four of NPOESS's most complex sensors: the Visible/Infrared Imager Radiometer Suite (VIIRS), the Cross Track Infrared Sounder (CrIS), the Advanced Technology Microwave Sounder (ATMS), and the Ozone Mapper/Profiler Suite (OMPS). 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 2002</u>			<u>FY 2003</u>			<u>FY 2004</u>					
	1	2	3	4	1	2	3	4	1	2	3	4
(U) Key Decision Point C decision/DSAB				*								
(U) Award of A&O/Production				*								
(U) Sensors Critical Design Reviews		*	*			X	X					
(U) System Delta Preliminary Design Review												X
(U) Initial Baseline Review						X						
(U) Executive Committee Review							X					
(U) NPP Milestone Review						X						

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)							DATE February 2003					
BUDGET ACTIVITY 04 - Advanced Component Development and Prototypes (ACD&P)				PE NUMBER AND TITLE 0603434F National Polar-Orbiting Operational Environmental Satellite System (NPOESS)				PROJECT 4056				
(U) <u>F. Schedule Profile Continued</u>												
		<u>FY 2002</u>			<u>FY 2003</u>			<u>FY 2004</u>				
	1	2	3	4	1	2	3	4	1	2	3	4
(U) * = Completed Event X = Planned Event												
Project 4056				Page 5 of 8 Pages				Exhibit R-2 (PE 0603434F)				

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)						DATE February 2003					
BUDGET ACTIVITY				PE NUMBER AND TITLE			PROJECT				
04 - Advanced Component Development and Prototypes (ACD&P)				0603434F National Polar-Orbiting Operational Environmental Satellite System (NPOESS)			4056				
(U) A. Project Cost Breakdown (\$ in Thousands)											
						<u>FY 2002</u>		<u>FY 2003</u>		<u>FY 2004</u>	
(U)	Program Office Support for PDRR/A&O efforts					907		925		944	
(U)	System Architecture Studies/Definition/Ground System Risk Reduction					40,000		0		0	
(U)	Government Led Risk Reduction/ Technology efforts					0		0		0	
(U)	Sensor/Algorithm Development and Design/Fabrication for Risk Reduction Missions/Program Support					104,728		0		0	
(U)	Acquisition & Operations effort					5,500		231,157		266,772	
(U)	Total					151,135		232,082		267,716	
(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 2002</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget FY 2004</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	27,700	27,700	13,450	14,250				27,700	
Lockheed Martin (PDRR)	C/FFP	Dec 99	38,700	38,700	12,950	25,750				38,700	
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	29,746					29,746	
Ball Aerospace (OMPS)	C/CPAF	May 99	35,730	35,730	19,617	16,113				35,730	
ITT Aerospace (VIIRS & CrIS)	C/CPFF	Jul 97	30,475	30,475	30,475					30,475	
Boeing (formerly Hughes) Space and Communications	C/CPFF	Jul 97	27,195	27,195	27,195					27,195	
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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2003				
BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT			
04 - Advanced Component Development and Prototypes (ACD&P)				0603434F National Polar-Orbiting Operational Environmental Satellite System (NPOESS)				4056			
(U) <u>Performing Organizations Continued:</u>											
<u>Product Development Organizations</u>											
(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	8,507	8,507	3,330	5,177					8,507
ITT Aerospace (CrIS)	C/CPAF	Aug 99	40,500	40,500	10,700	29,800					40,500
Raytheon (VIIRS)	C/CPAF	Nov 00	51,170	51,170	13,053	38,117					51,170
Boeing (CMIS)	C/CPAF	Jul 01	15,521	15,521		15,521					15,521
Northrop Grumman (A&O)	C/CPAF	Aug 02	1,723,160	1,723,160		5,500	231,157	266,772	1,219,731		1,723,160
Other Contracts	MISC	Various	21,975	21,975	21,975						21,975
Government Led Studies	Gov. Orgs.	Various	26,302	26,302	26,302						26,302
<u>Support and Management Organizations</u>											
Integrated Program Office	Various	Various	17,076	17,076	14,300	907	925	944			17,076
(IPO) Support											
<u>Test and Evaluation Organizations</u>											
Included in IPO Support											
(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 2002</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>Complete</u>	<u>Program</u>	
<u>Product Development Property</u>											
NOT APPLICABLE											
<u>Support and Management Property</u>											
NOT APPLICABLE											
<u>Test and Evaluation Property</u>											
NOT APPLICABLE											
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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)					DATE February 2003	
BUDGET ACTIVITY	PE NUMBER AND TITLE				PROJECT	
04 - Advanced Component Development and Prototypes (ACD&P)	0603434F National Polar-Orbiting Operational Environmental Satellite System (NPOESS)				4056	
	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
	<u>to FY 2002</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>Complete</u>	<u>Program</u>
Subtotals						
Subtotal Product Development	260,182	150,228	231,157	266,772	1,219,731	2,128,070
Subtotal Support and Management	14,300	907	925	944		17,076
Subtotal Test and Evaluation						
Total Project	274,482	151,135	232,082	267,716	1,219,731	2,145,146

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

February 2003

BUDGET ACTIVITY

04 - Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603438F Space Control Technology

COST (\$ in Thousands)	FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	28,967	13,609	14,714	15,786	14,168	23,035	30,556	40,275	Continuing	TBD
2611 Technology Insertion Planning and Analysis	28,967	13,609	9,409	9,414	9,499	12,555	15,741	20,644	Continuing	TBD
A007 Space Range	0	0	5,305	6,372	4,669	10,480	14,815	19,631	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

In FY 2004, Project A007, Space Range, was transferred from Project 2611 in this PE for efforts to develop the Space Range.

(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 Space Situational Awareness (SSA) (formally Surveillance), Defensive Counterspace (DCS) (formally Protection and Prevention), and Offensive Counterspace (OCS) (formally Negation). For use in the Space Control mission area, SSA includes monitoring, detecting, identifying, tracking, assessing, verifying, categorizing, and characterizing, objects and events in space. DCS includes defensive activities to protect U.S. and friendly space-systems assets, resources, and operations from enemy attempts to negate or interfere and prevention activities that limit or eliminate an adversary's ability to use U.S. space systems and services for purposes hostile to U.S. national security interests. OCS activities disrupt, deny, degrade or destroy 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 systems. Additionally, this program supports the development of test range assets required to support exercises, training, and tactics development for space control systems.

(U) B. Budget Activity Justification

These two projects are in Budget Activity 4, Advanced Component Development and Prototypes, because they support the research, demonstration, component development and prototyping of Space Control technologies.

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE
February 2003

BUDGET ACTIVITY
04 - Advanced Component Development and Prototypes
(ACD&P)

PE NUMBER AND TITLE
0603438F Space Control Technology

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

	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>Total Cost</u>
(U) Previous President's Budget	32,344	13,814	13,750	TBD
(U) Appropriated Value	33,022	13,814		
(U) Adjustments to Appropriated Value				
a. Congressional/General Reductions	-1,421	-146		
b. Small Business Innovative Research	-1,634			
c. Omnibus or Other Above Threshold Reprogram		-59		
d. Below Threshold Reprogram	-1,000			
e. Rescissions				
(U) Adjustments to Budget Years Since FY 2003 PBR			964	
(U) Current Budget Submit/FY 2004 PBR	28,967	13,609	14,714	TBD
(U) <u>Significant Program Changes:</u>				
None.				

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)

DATE
February 2003

BUDGET ACTIVITY 04 - Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603438F Space Control Technology	PROJECT 2611
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COST (\$ in Thousands)	FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
2611 Technology Insertion Planning and Analysis	28,967	13,609	9,409	9,414	9,499	12,555	15,741	20,644	Continuing	TBD

(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 Space Situational Awareness (SSA) (formally Surveillance), Defensive Counterspace (DCS) (formally Prevention and Protection), and Offensive Counterspace (OCS) (formally Negation). For use in the Space Control mission area, SSA includes monitoring, detecting, identifying, tracking, assessing, verifying, categorizing, and characterizing, objects and events in space. SSA technology development also supports the Space Based Space Surveillance (SBSS) program. DCS includes defensive activities to protect U.S. and friendly space-systems assets, resources, and operations from enemy attempts to negate or interfere and prevention activities that limit or eliminate an adversary's ability to use U.S. space systems and services for purposes hostile to U.S. national security interests. DCS technology development also supports the Rapid Attack Identification Reporting System (RAIDRS). OCS 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.

Budget Activity Justification

This project is in Budget Activity 4, Advanced Component Development and Prototypes because it supports the research, demonstration, component development and prototyping of Space Control technologies.

(U) FY 2002 (\$ in Thousands)

- (U) \$0** Accomplishments/Planned Program
- (U) \$7,761** Accomplished threat warning and attack reporting AoA. Continued 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) \$7,150** Began the development and fielding of a small, mobile/transportable system to counter satellite communication systems. Developed and demonstrated advanced counter communications technologies and techniques.
- (U) \$9,979** Began development and demonstration of a system to counter surveillance and reconnaissance (SR) satellite systems. Participated in exercises and demonstrations of a counter (SR) system. Completed military utility analysis, risk reduction efforts, and performed pre-concept exploration

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)		DATE February 2003
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
04 - Advanced Component Development and Prototypes (ACD&P)	0603438F Space Control Technology	2611
<p>(U) <u>A. Mission Description Continued</u></p> <p>(U) <u>FY 2002 (\$ in Thousands) Continued</u> and concept definition, system architecture development, and planning to support FY02 and early FY03 decisions for system development. Continued to develop advanced counter-SR techniques.</p> <p>(U) \$748 Continued 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.</p> <p>(U) \$3,329 Began development of the system architecture and acquisition of Space Control elements of the Space range. Began demonstration of test assets, special test equipment, capabilities and systems required to test, validate, and verify performance of integrated Space Control systems. Developed the test range assets to exercise, train, and develop tactics for Space Control systems.</p> <p>(U) \$28,967 Total</p> <p>(U) <u>FY 2003 (\$ in Thousands)</u></p> <p>(U) \$0 Accomplishments/Planned Program</p> <p>(U) \$3,000 Continue vulnerability assessments. Includes vulnerabilities of space/link/ground segments of DoD space systems. Perform assessments on new DoD space systems: categorize effects for support to Satellite-As-A-Sensor activities.</p> <p>(U) \$2,897 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 characteristics.</p> <p>(U) \$2,112 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 systems. Continue developing the test range assets to exercise, train, and develop tactics for Space Control systems.</p> <p>(U) \$13,609 Total</p>		
Project 2611	Page 4 of 12 Pages	Exhibit R-2A (PE 0603438F)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)		DATE February 2003																																	
BUDGET ACTIVITY 04 - Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603438F Space Control Technology	PROJECT 2611																																	
<p>(U) <u>A. Mission Description Continued</u></p> <p>(U) <u>FY 2004 (\$ in Thousands)</u></p> <p>(U) \$0 Accomplishments/Planned Program</p> <p>(U) \$5,267 Defensive Counterspace efforts. Continue vulnerability assessments. Includes vulnerabilities of space/link/ground segments of DoD space systems. Perform assessments on new DoD space systems. Begin looking at protection measures against optical jammers. Continue investigations in key technology areas such as data fusion, data mining, radiation effects, kinetic energy impacts, anomaly resolution. 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. Includes funding for architectural engineering leading to an overall Space Control architecture.</p> <p>(U) \$3,542 Offensive Counterspace efforts. Continue development and demonstration of advanced counter- communications technologies and techniques, to include bandwidth on demand communications techniques. Continue exploring technologies leading to future generation counter-communications systems and advanced target characteristics. Includes development of countermeasures for insertion into counter-communications weapons systems. Continue development of critical signal processing technology. Continue to develop, prototype, and demonstrate advanced counter surveillance, reconnaissance techniques. Begin technology development and demonstration of future generation counter surveillance and reconnaissance capabilities to include hyper-spectral capabilities. Includes funding for architectural engineering of leading to an overall Space Control architecture. Begin investigations of SAR and radar interference jamming characterization.</p> <p>(U) \$600 Space Situational Awareness efforts. Continue development of key space situational awareness enabling technologies for monitoring, detecting, identifying, tracking, assessing, verifying, categorizing, and characterizing objects and events in space for use in the Space Control mission area.</p> <p>(U) \$9,409 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></th> <th align="center"><u>FY 2002</u></th> <th align="center"><u>FY 2003</u></th> <th align="center"><u>FY 2004</u></th> <th align="center"><u>FY 2005</u></th> <th align="center"><u>FY 2006</u></th> <th align="center"><u>FY 2007</u></th> <th align="center"><u>FY 2008</u></th> <th align="center"><u>FY 2009</u></th> <th align="center"><u>Cost to</u></th> <th align="center"><u>Total Cost</u></th> </tr> <tr> <th></th> <th align="center"><u>Actual</u></th> <th align="center"><u>Estimate</u></th> <th align="center"><u>Estimate</u></th> <th align="center"><u>Estimate</u></th> <th align="center"><u>Estimate</u></th> <th align="center"><u>Estimate</u></th> <th align="center"><u>Estimate</u></th> <th align="center"><u>Estimate</u></th> <th align="center"><u>Complete</u></th> <th></th> </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><td></td> </tr> </tbody> </table> <p>(U) <u>D. Acquisition Strategy</u> All contracts funded in this program element will be awarded using competitive procedures to the maximum extent possible.</p>				<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>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>		<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>		(U) None										
	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>																									
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>																										
(U) None																																			
Project 2611	Page 5 of 12 Pages	Exhibit R-2A (PE 0603438F)																																	

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)										DATE February 2003		
BUDGET ACTIVITY					PE NUMBER AND TITLE					PROJECT		
04 - Advanced Component Development and Prototypes (ACD&P)					0603438F Space Control Technology					2611		
(U) E. Schedule Profile												
		<u>FY 2002</u>				<u>FY 2003</u>				<u>FY 2004</u>		
	1	2	3	4	1	2	3	4	1	2	3	4
(U) AFSPC Space Control Mission Area Plan Completion		*										
(U) Protection												
(U) Potential attack reporting solutions and architecture studies complete		*										
(U) Begin development of threat warning and attack reporting architecture		*										
(U) Satellite as a Sensor evaluations complete							X					
(U) Prevention												
(U) Continue development of advanced techniques and technologies					*						X	
(U) Evaluate interim report							X					
(U) Negation												
(U) Begin Advanced Technology development for negation systems					*							
(U) Begin development of a Counter-Communications system			*									
(U) Complete Counter- Surveillance/Recon Military Utility Analysis	*											
(U) Acquisition decision to enter Counter-SR system development			*									
(U) New start for Counter-SR system development				*								
(U) Vulnerability Assessment reports								X				X
(U) Space Range												
(U) System acquisition new start		*										
(U) Continue development of system architecture including SSA elements												
(U) Continue demonstration of test assets							X					
(U) Continue developing test range technologies and systems							X					
* = Completed Event X = Scheduled Event												

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2003			
BUDGET ACTIVITY					PE NUMBER AND TITLE			PROJECT		
04 - Advanced Component Development and Prototypes (ACD&P)					0603438F Space Control Technology			2611		
(U) A. Project Cost Breakdown (\$ in Thousands)										
					<u>FY 2002</u>		<u>FY 2003</u>			<u>FY 2004</u>
(U)	Surveillance technology assessment (renamed Space Situational Awareness in FY04)				0		0			600
(U)	Protection technology assessment (renamed Defensive Counter Space in FY04)				7,761		3,000			5,267
(U)	Negation technology development (renamed Offensive Counter Space in FY04)						5,009			3,542
(U)	Counter Communications system development (moved to PE 0604421F in FY03)				7,150		0			0
(U)	Counter Surveillance/Reconnaissance technology and system development (moved to PE 0604421F in FY03)				9,979		0			0
(U)	Prevention technology development (FY04 included in DCS)				748		1,500			0
(U)	Space Control Test Range				3,329		4,100			0
(U)	Total				28,967		13,609			9,409
(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 2002</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget FY 2004</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Product Development Organizations</u>										
FFRDC, Various SETA, SPO	Various				15,252	7,560	4,640	4,675	Continuing	TBD
MAPIC	CPAF	Feb 02				12,882	8,049	3,434	Continuing	TBD
AFRL	Various				10,948	6,868	200	400	Continuing	TBD
<u>Support and Management Organizations</u>										
SMC	Various				356	935	720	900	Continuing	TBD
AFRL	Various				0	722	0	0	Continuing	TBD
<u>Test and Evaluation Organizations</u>										

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2003		
BUDGET ACTIVITY 04 - Advanced Component Development and Prototypes (ACD&P)				PE NUMBER AND TITLE 0603438F Space Control Technology			PROJECT 2611		
(U) Government Furnished Property:									
	<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>Item</u>	<u>Method/Type</u>	<u>Obligation</u>	<u>Date</u>	<u>to FY 2002</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</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 2002</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>Complete</u>	<u>Program</u>
Subtotal Product Development				26,200	27,310	12,889	8,509	TBD	TBD
Subtotal Support and Management				356	1,657	720	900	TBD	TBD
Subtotal Test and Evaluation									
Total Project				26,556	28,967	13,609	9,409	TBD	TBD

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)									DATE February 2003			
BUDGET ACTIVITY 04 - Advanced Component Development and Prototypes (ACD&P)					PE NUMBER AND TITLE 0603438F Space Control Technology					PROJECT A007		
COST (\$ in Thousands)			FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
A007	Space Range		0	0	5,305	6,372	4,669	10,480	14,815	19,631	Continuing	TBD
<p>In FY 2004, Project 2611, Technology Insertion Planning and Analysis was changed to separate activities for ease of description and execution by transferring the Space Range activities into Project A007, Space Range.</p> <p>(U) <u>A. Mission Description</u> This program supports the development of test range assets required to support exercises, training, and tactics development for Space Control systems.</p> <p>Budget Activity Justification This project is in Budget Activity 4, Advanced Component Development and Prototypes because it supports the research, demonstration, component development and prototyping of Space Control Range technologies</p> <p>(U) <u>FY 2002 (\$ in Thousands)</u> (U) \$0 Accomplishments/Planned Program (U) \$0 Activity Accomplished in Project 2611 (U) \$0 Total</p> <p>(U) <u>FY 2003 (\$ in Thousands)</u> (U) \$0 Accomplishments/Planned Program (U) \$0 Activity in Project 2611 (U) \$0 Total</p> <p>(U) <u>FY 2004 (\$ in Thousands)</u> (U) \$0 Accomplishments/Planned Program (U) \$4,500 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 systems. (U) \$705 Program Office Support (U) \$100 Exercise and demonstration support (U) \$5,305 Total</p>												
Project A007			Page 9 of 12 Pages					Exhibit R-2A (PE 0603438F)				

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)								DATE February 2003					
BUDGET ACTIVITY 04 - Advanced Component Development and Prototypes (ACD&P)					PE NUMBER AND TITLE 0603438F Space Control Technology			PROJECT A007					
(U) B. Project Change Summary													
(U) C. Other Program Funding Summary (\$ in Thousands)													
	<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>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>			
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>				
(U) AF RDT&E													
(U) Other APPN													
(U) D. Acquisition Strategy													
All contracts funded in this program element will be awarded using competitive procedures to the maximum extent possible.													
(U) E. Schedule Profile													
		<u>FY 2002</u>				<u>FY 2003</u>				<u>FY 2004</u>			
		1	2	3	4	1	2	3	4	1	2	3	4
(U) Continue demonstration of test assets										X	X	X	X
(U) Continue developing test range technologies and systems												X	X

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2003				
BUDGET ACTIVITY 04 - Advanced Component Development and Prototypes (ACD&P)					PE NUMBER AND TITLE 0603438F Space Control Technology			PROJECT A007			
(U) A. Project Cost Breakdown (\$ in Thousands)											
					FY 2002		FY 2003			FY 2004	
(U)	Space Control Test Range development				0		0			4,500	
(U)	Program Office				0		0			705	
(U)	Exercise and Demonstration Support				0		0			100	
(U)	Total				0		0			5,305	
(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 2002</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget FY 2004</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Product Development Organizations</u>										
	MAPIC					0	0	0	4,500	Continuing	TBD
	<u>Support and Management Organizations</u>										
	SMC/FFRDC/SETA					0	0	0	805	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 2002</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget FY 2004</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Product Development Property</u>										
	None										
	<u>Support and Management Property</u>										
	None										

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE				
BUDGET ACTIVITY		PE NUMBER AND TITLE			PROJECT	
04 - Advanced Component Development and Prototypes (ACD&P)		0603438F Space Control Technology			February 2003 A007	
(U) Government Furnished Property Continued:						
<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 2002</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>Complete</u>
						<u>Total</u>
<u>Subtotals</u>						
Subtotal Product Development		0	0	0	4,500	TBD
Subtotal Support and Management		0	0	0	805	TBD
Subtotal Test and Evaluation						
Total Project		0	0	0	5,305	TBD
Project A007						
Page 12 of 12 Pages						
Exhibit R-3 (PE 0603438F)						

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									DATE February 2003			
BUDGET ACTIVITY 04 - Advanced Component Development and Prototypes (ACD&P)					PE NUMBER AND TITLE 0603742F Combat Identification Technology					PROJECT 2597		
COST (\$ in Thousands)			FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
2597	Noncooperative Identification Subsystems		12,849	12,135	16,575	19,633	19,839	20,201	20,492	20,767	Continuing	TBD
	Quantity of RDT&E Articles		0	0	0	0	0	0	0	0	0	0
<p>(U) <u>A. Mission Description</u></p> <p>U.S. Combat Air Forces have a critical requirement to positively identify (enemy, friendly, neutral) aircraft, battlefield equipment and personnel/combatants. Multiple other Joint Mission Needs Statements (MNS), Air Force Operational Requirements Documents (ORD), and NATO requirements documents also state Combat Identification (CID) operational needs. High confidence & high probability of ID, all weather & day/night operational needs as well as timely and reliable CID will improve combat effectiveness, reduce fratricide and enable battlespace commanders to effectively manage and control their forces.</p> <p>The Combat Identification Technology program analyzes, develops, demonstrates, and transitions to SDD programs promising target identification technologies. These technologies include both cooperative and non-cooperative techniques that improve US ability to positively identify ground and air targets in Air-to-Surface and Air-to-Air CID engagements.</p> <p>Air-to-Surface technologies funded by this program include Laser Vision, an electro-optical (EO) system that significantly increases ID ranges, Vibration Vision, which exploits vibration signatures to increase probability and confidence of ground target ID, and the maturation of algorithms for these efforts to support Automatic Target Cueing and Automatic Target Recognition.</p> <p>Air-to-Air technologies funded by this program include High Range Resolution (HRR) radar techniques to increase ID ranges as well as confidence, and improvements to the Mark XII system to implement Mode V, which will enable robust, secure Identification Friend or Foe (IFF).</p> <p>(U) <u>FY 2002 (\$ in Thousands)</u></p> <p>(U) \$0 Accomplishment/Planned Program</p> <p>(U) \$2,970 Continued the HRR synthetic target database development in conjunction with the National Air Intelligence Center (NAIC). Implemented risk reduction measures to increase the fidelity of the HRR database and prepared to transition database management/maintenance from the lab environment to a System Program Office (SPO).</p> <p>(U) \$7,706 Continued development and demonstration of promising air-to-ground and air-to-air identification techniques for reduced battlefield fratricide</p>												
Project 2597			Page 1 of 9 Pages					Exhibit R-2 (PE 0603742F)				

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE
		February 2003
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
04 - Advanced Component Development and Prototypes (ACD&P)	0603742F Combat Identification Technology	2597
<p>(U) <u>A. Mission Description Continued</u></p> <p>(U) <u>FY 2002 (\$ in Thousands) Continued</u></p> <p>and enhanced mission performance. Transition program candidates include continuing development and integration of Enhanced Recognition and Sensing laser Radar (ERASER)/Laser Vision, baselining associated EO/ATC (Automatic Target Cueing)/ATR (Automatic Target Recognition) capability, performing Multi Vision military utility assessments/trade studies to define a transition roadmap for the Joint Airborne Night Navigation and Attack (JOANNA) and related technologies, and continuing to mature/harden camera technologies for flight environments. Other potential candidates could include the Air-to-Ground Imaging (AGRI) technology.</p> <p>(U) \$673 Funded 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.</p> <p>(U) \$988 Provided for CID Integrated Management Team and other engineering support for integration and management of Air Force CID programs.</p> <p>(U) \$512 Conducted CID related studies/demos and conferences. Studies/demos included 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.</p> <p>(U) \$12,849 Total</p> <p>(U) <u>FY 2003 (\$ in Thousands)</u></p> <p>(U) \$0 Accomplishment/Planned Program</p> <p>(U) \$3,046 Continue the HRR synthetic target database development in conjunction with NAIC. Implement risk reduction to increase the fidelity of the HRR database and prepare for the transition of database management/maintenance from the lab environment to a SPO.</p> <p>(U) \$6,349 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 continuing development and integration of ERASER/Laser Vision, baselining associated EO/ATC/ATR capability, continuing Multi-Vision military utility assessments/trade studies to define a transition roadmap for JOANNA and related technologies, and continuing to mature/harden camera technologies for flight environments. Other potential candidates could include (Air-to-Ground Radar Imaging) AGRI and vibration exploitation technologies.</p> <p>(U) \$713 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.</p> <p>(U) \$966 Provides for the CID Integrated Management Team and other engineering support necessary for management of CID efforts.</p> <p>(U) \$1,061 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</p>		
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BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
04 - Advanced Component Development and Prototypes (ACD&P)	0603742F Combat Identification Technology	2597
<p>(U) <u>A. Mission Description Continued</u></p> <p>(U) <u>FY 2003 (\$ in Thousands) Continued</u></p> <p style="padding-left: 40px;">increase warfighter's CID capabilities.</p> <p>(U) \$12,135 Total</p> <p>(U) <u>FY 2004 (\$ in Thousands)</u></p> <p>(U) \$0 Accomplishment/Planned Program</p> <p>(U) \$5,174 Continue the HRR synthetic target database development and complete the transition of database management/maintenance from the lab environment to a SPO.</p> <p>(U) \$8,269 Continue development, demonstration and transition of promising air-to-ground and air-to-air identification techniques for reduced battlefield fratricide and enhanced mission performance. Transition programs include Laser Vision, ERASER, associated EO/ATR, Laser Vibrometry, and Radar Vision incorporation of Air-to-Ground Imaging (AGRI), phase I technology.</p> <p>(U) \$791 Fund AIMS Program Office support of IFF equipment integration and certification.</p> <p>(U) \$1,023 Funds the CID Integrated Management Team and other engineering support necessary for management of CID efforts. Includes support for Mode V IFF flight demonstration.</p> <p>(U) \$1,318 Conduct CID-related studies/demos and conferences. Studies/demos will include those directed by the Joint Staff and OSD to research implementation and evaluation of a family of CID systems, linkage between airborne and ground-based non-cooperative CID technologies/systems, and to attempt to quantify the relationship between CID and improved combat effectiveness. Also includes Mode V IFF flight test preparations and demonstration to assess system operational capacity, interoperability, and equipment integration.</p> <p>(U) \$16,575 Total</p> <p>(U) <u>B. Budget Activity Justification</u></p> <p>This program is in Budget Activity 4 - Advanced Component Development and Prototypes (ACD&P). The PE includes advanced technology demonstrations that help transition technologies from laboratory to operational use.</p>		
Project 2597	Page 3 of 9 Pages	Exhibit R-2 (PE 0603742F)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)							DATE February 2003				
BUDGET ACTIVITY 04 - Advanced Component Development and Prototypes (ACD&P)				PE NUMBER AND TITLE 0603742F Combat Identification Technology			PROJECT 2597				
(U) C. Program Change Summary (\$ in Thousands)											
				<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>		<u>Total Cost</u>			
(U)	Previous President's Budget			11,409	12,434	16,955					
(U)	Appropriated Value			11,523	12,434						
(U)	Adjustments to Appropriated Value										
	a. Congressional/General Reductions			-114	-44						
	b. Small Business Innovative Research			-315							
	c. Omnibus or Other Above Threshold Reprogram				-123						
	d. Below Threshold Reprogram			1,818							
	e. Rescissions			-63	-132						
(U)	Adjustments to Budget Years Since FY 2003 PBR					-380					
(U)	Current Budget Submit/FY 2004 PBR			12,849	12,135	16,575		TBD			
(U)	<u>Significant Program Changes:</u>										
(U) D. Other Program Funding Summary (\$ in Thousands)											
		<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>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
		<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U)	None	0	0	0	0					0	0
(U) E. Acquisition Strategy											
<p>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.</p>											
(U) F. Schedule Profile											
				<u>FY 2002</u>		<u>FY 2003</u>		<u>FY 2004</u>			

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BUDGET ACTIVITY
04 - Advanced Component Development and Prototypes
(ACD&P)

PE NUMBER AND TITLE
0603742F Combat Identification Technology

PROJECT
2597

(U) **F. Schedule Profile Continued**

	<u>FY 2002</u>				<u>FY 2003</u>				<u>FY 2004</u>			
	1	2	3	4	1	2	3	4	1	2	3	4
(U) 1. HRR Classifier Dev/Qual												
(U) Technique Selection for Model Creation		*										
(U) Completion of 150 Feature Quality Models					*							
(U) Start of Lab-based Model Validation							X					
(U) Completion of Lab Validation							X					
(U) Comp of 6 High-Fidelity NAIC Models								X				
(U) Start work on next set of Feature Quality Models										X		
(U) 2. LASER VISION (flt test of ERASER technology)												
(U) Completion of Lab Demos				*								
(U) Phase II, Part III Contract Modification				*								
(U) Tower Demonstrations				*				X				
(U) Mountaintop Demo					*			X				
(U) Flight Testing									X			
(U) Completion of Phase II									X			
(U) Start of SDD										X		
(U) 3. VIBRATION VISION ANALYSIS												
(U) Completion of Multivision Feasibility Analysis				*								
(U) Transition Strategy Decision							X					
(U) Beginning of Integration Activities										X		
(U) 4. AIMSPO Integration and Certification Support												
(U) AN/APX-117, 118, & 119 IFF Systems Certified				*								
(U) AN/TPX-56 IFF System Certified				*								
(U) AN/UPX-37 IFF System Certified				*								
(U) Complete AN/APX-113, 114 Certification									X			
(U) Complete ATCBI-6 Certification									X			
(U) C-35, C-40 IFF Integration Support Completed				*								

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BUDGET ACTIVITY					PE NUMBER AND TITLE					PROJECT		
04 - Advanced Component Development and Prototypes (ACD&P)					0603742F Combat Identification Technology					2597		
(U) <u>F. Schedule Profile Continued</u>												
		FY 2002				FY 2003				FY 2004		
	1	2	3	4	1	2	3	4	1	2	3	4
(U)	Mode V Engineering Specification Comp					X						
(U)	F-35 IFF Integration Support Started					*						
(U)	F-15, F-16 IFF Integration Support Started									*		
(U)	F-22 IFF Integration Support Started					X						
(U)	5. Integrated Management Team											
(U)	Initial Air-to-Air CID Tech Roadmap Comp											
(U)	Air-to-Air CID Tech Roadmap Update							X				X
(U)	Initial Air-to-Ground CID Tech Roadmap Comp					X						
(U)	Air-to-Ground CID Tech Roadmap Update									X		
(U)	Complete Mode V Acquisition Strategy					X						
(U)	Start Mode V Fielding Support									X		
(U)	Start Mode V IFF Flight Demo Planning and Support									X		
(U)	6. CID Studies and Demos											
(U)	AFSAA Analysis of Alternative Start									*		
(U)	AFSAA AoA Completion									X		
(U)	Mode V IFF Flight Demonstration											X
	* denotes completed events											
	X denotes planned events											

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2003				
BUDGET ACTIVITY					PE NUMBER AND TITLE			PROJECT			
04 - Advanced Component Development and Prototypes (ACD&P)					0603742F Combat Identification Technology			2597			
(U) A. Project Cost Breakdown (\$ in Thousands)											
						<u>FY 2002</u>		<u>FY 2003</u>		<u>FY 2004</u>	
(U)	Analysis/Modeling and Simulation, Studies, Plans and Reports					512		1,061		787	
(U)	Data Synthesis, Algorithm Development, Database Support					2,970		3,046		5,174	
(U)	Hardware/Software and Prime Mission Product Development					7,556		6,349		6,000	
(U)	IFF Equip Config Control, Certification & Integration Support					673		713		791	
(U)	CID Training, Travel, & Operations					988		966		1,023	
(U)	Flight Test					150		0		2,800	
(U)	Total					12,849		12,135		16,575	
(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 2002</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget FY 2004</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Product Development Organizations</u>											
	Raytheon Co, El Segundo CA	CPFF	Nov 98	TBD	TBD	900	1,215	1,215	1,215	Continuing	TBD
	Veridian (Veda) Dayton, OH	CPFF	Aug 98	TBD	TBD	400	400	400	400	Continuing	TBD
	Simulation Support, Inc.	CP	May 99	330	330	330	0	0	0	330	660
	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	1,856	0	0	0	Continuing	TBD
	ERASER-Raytheon, Plano TX	CPFF	Dec 97	TBD	TBD	462	0	0	0	Continuing	TBD
	Raytheon Co, El Segundo	OTA	Mar 00	TBD	TBD	150	0	0	0	Continuing	TBD
	Lockheed Martin, Orlando	OTA	Mar 00	TBD	TBD	150	5,485	3,985	2,090	Continuing	TBD
	Northrup Grumman, Rolling Meadows, IL	OTA	Mar 00	TBD	TBD	150	0	0	0	Continuing	TBD
	TBD	TBD	TBD	TBD	TBD	0	0	0	3,906	Continuing	TBD
Project 2597											

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)									DATE February 2003	
BUDGET ACTIVITY					PE NUMBER AND TITLE				PROJECT	
04 - Advanced Component Development and Prototypes (ACD&P)					0603742F Combat Identification Technology				2597	
(U) Performing Organizations Continued:										
<u>Product Development Organizations</u>										
Demaco	CPFF	Aug 94	TBD	TBD	6,604	0	0	0	0	6,604
SAIC (Demaco, Inc)	CPFF	May 99	TBD	TBD	800	1,180	1,180	409	Continuing	TBD
Cyberdynamics	CPFF	May 99	2,112	2,112	10	0	0	0	Continuing	TBD
AIMS Program Office	MIPR	Annual	N/A	N/A	954	673	713	791	Continuing	TBD
Wright Laboratory (Camera & ATR development)	MIPR	Jan 01	N/A	N/A	2,000	0	0	0	Continuing	TBD
Wright Laboratory (LV)	MIPR	N/A	N/A	N/A	1,353	2,100	2,226	0	Continuing	TBD
Telephonics	TBD	Apr 03	TBD	TBD	0	0	586	305	Continuing	TBD
<u>Support and Management Organizations</u>										
USAF Combat ID IMT and Engineering Support	Various	N/A	N/A	N/A	4,584	1,505	1,374	1,535	Continuing	TBD
Wright Laboratory (HRR)	MIPR	N/A	TBD	TBD	2,392	70	456	3,124	Continuing	TBD
Wright Laboratory (ERASER)	MIPR	N/A	N/A	N/A	0	50	0	0	0	50
US Army Tank Command	MIPR	N/A	N/A	N/A	0	21	0	0	0	21
<u>Test and Evaluation Organizations</u>										
3246th Test Wing, Eglin AFB, FL	Mixed, CPF,	N/A	TBD	TBD	4,089	0	0	2,270	Continuing	TBD
544th Range Group, Nellis AFB, NV										
412 Test Wing, Edwards AFB	MIPR	N/A	TBD	TBD	239	150	0	0	Continuing	TBD
552nd Air Control Wing, Tinker, OK	MIPR	N/A	TBD	TBD	0	0	0	530	Continuing	TBD

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)					DATE February 2003	
BUDGET ACTIVITY		PE NUMBER AND TITLE			PROJECT	
04 - Advanced Component Development and Prototypes (ACD&P)		0603742F Combat Identification Technology			2597	
		<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>
		<u>to FY 2002</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>Complete</u>
						<u>Total</u>
	<u>Subtotals</u>					<u>Program</u>
	Subtotal Product Development	19,448	11,053	10,305	9,116	TBD
	Subtotal Support and Management	6,976	1,646	1,830	4,659	TBD
	Subtotal Test and Evaluation	4,328	150	0	2,800	TBD
	Total Project	30,752	12,849	12,135	16,575	TBD

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE
February 2003

BUDGET ACTIVITY 04 - Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603790F NATO Cooperative R&D	PROJECT NATO
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COST (\$ in Thousands)	FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
NATO Nato Coop R&D	5,230	4,237	3,888	3,940	3,963	3,980	4,098	4,152	0	0
Quantity of RDT&E Articles	0	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, major non-NATO allies (Argentina, Australia, Egypt, Israel, Japan, Jordan, and Rep. of Korea (South Korea), and friendly foreign countries (Austria, Brazil, Bulgaria, Finland, India, Singapore, South Africa, Sweden, Switzerland, and Ukraine). 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) Advanced Component Development and Prototypes (5) System Development and Demonstration and (6) RDT&E Management Support.

(U) FY 2002 (\$ in Thousands)

- (U) \$493** Advanced Hybrid Propulsion Technologies (AHPT) (AFRL/ Japan) - Cooperative project to researched and explore 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) - 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.

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE
BUDGET ACTIVITY 04 - Advanced Component Development and Prototypes (ACD&P)		February 2003
PE NUMBER AND TITLE 0603790F NATO Cooperative R&D		PROJECT NATO
<p>(U) <u>A. Mission Description Continued</u></p> <p>(U) <u>FY 2002 (\$ in Thousands) Continued</u></p> <p>(U) \$450 ATLANTIC PAW (AFRL/ France, Germany, UK) - 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.</p> <p>(U) \$1,500 Coalition Aerial Surveillance And Reconnaissance (CAESAR) (ESC/ Canada, France, Germany, Italy, Norway, UK) - 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, the project will continue to focus on developing interoperability amongst surveillance and reconnaissance assets of participating nations, and develop architecture and interoperability framework, key interfaces, and formats needed to meet coalition warfare requirements.</p> <p>(U) \$182 CC3DE (AFRL/ Australia, Canada) - 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.</p> <p>(U) \$250 Cooperative Research and Development Efforts in Imaging Spectrometer Development (AEDC/ Canada) - 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.</p> <p>(U) \$250 Distributed Mission Training (DMT) and Virtual Air Environment (VAE) Technologies (AFRL/ Australia) - Cooperative project to develop DMT and VAE technologies to 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</p>		
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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE
BUDGET ACTIVITY 04 - Advanced Component Development and Prototypes (ACD&P)		February 2003
PE NUMBER AND TITLE 0603790F NATO Cooperative R&D		PROJECT NATO
(U) <u>A. Mission Description Continued</u>		
(U) <u>FY 2002 (\$ in Thousands) Continued</u>	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) \$460	DMT Technologies (AFRL/ Canada) - Cooperative project to develop DMT technologies to 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.	
(U) \$400	Engine Component Life Extension (AFRL/ Australia) - 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) \$398	ITAC Program (AFRL/ France) - Cooperative project to develop, integrate and demonstrate critical flight control and flight management technologies that enable cooperative flight operations of a package comprised ofUCAVs. The cooperative control architecture enables management and control of an integrated strike package by the aircrews in the combat aircraft. Evaluation of a flight operations package will be performed to evaluate the robustness of ITAC. Interface control documents and software will be delivered.	
(U) \$300	Scintillation Impacts on Communication and Navigation Systems (AFRL/ Australia) - Cooperative project to 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) \$433	Strike Warrior (AFRL/ UK) - Cooperative project to develop, demonstrate, and test interface technology and concepts for future advanced strike	
Project NATO	Page 3 of 19 Pages	Exhibit R-2 (PE 0603790F)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 2003
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
04 - Advanced Component Development and Prototypes (ACD&P)	0603790F NATO Cooperative R&D	NATO
(U) <u>A. Mission Description Continued</u>		
(U) <u>FY 2002 (\$ in Thousands) Continued</u>		
	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) \$14	Management and administrative support and travel.	
(U) \$5,230	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) \$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 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) - Ongoing 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 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) \$400	Engine Component Life Extension (AFRL/ Australia) - Ongoing cooperative project to develop life extension techniques and strategies that can	
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<p>(U) <u>A. Mission Description Continued</u></p> <p>(U) <u>FY 2003 (\$ in Thousands) Continued</u></p> <p>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.</p> <p>(U) \$799 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.</p> <p>(U) \$500 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 FY03, real-time operator in the loop simulations will be conducted.</p> <p>(U) \$150 Materials and Technologies for Reverse Saturable Absorption (AFRL/ Australia) - Planned cooperative project to develop and characterize platinum poly-ynes 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.</p> <p>(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.</p> <p>(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.</p> <p>(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</p>		
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BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
04 - Advanced Component Development and Prototypes (ACD&P)	0603790F NATO Cooperative R&D	NATO
(U) <u>A. Mission Description Continued</u>		
(U) <u>FY 2003 (\$ in Thousands) Continued</u>		
	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) \$1,148	Strike Warrior (AFRL/ UK) - Ongoing cooperative project 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) \$182	Management and administrative support and travel.	
(U) \$4,237	Total	
(U) <u>FY 2004 (\$ in Thousands)</u>		
(U) \$100	Assessment of C3 Team Performance in Sustained Operations (AFRL/ Sweden) - Planned cooperative project studying the effects of acute and chronic fatigue in complex decision-making and team performance. This project will use a platform called C3FIRE to assess the effects of fatigue on adaptive team response, agility, and versatility to unpredictable, time-critical and long-duration high-ops tempo events.	
(U) \$261	C-2 Warrior (AFRL/ Australia) - Planned cooperative project will develop advanced work-centered interface technologies to enhance ISR Collection Management and Air Space Control operations within an Air Operations Center (AOC). The work-centered interface systems will integrate stereoscopic visualization, speech control, head-eye based control, gesture recognition, intelligent interface agents, and face recognition. By combining technical components within a work-centered organizing framework, an interface client system can be developed that will improve information integration, decision making, and operational execution.	
(U) \$100	Coalition Mission Training (AFRL/ Canada/ UK) - Planned cooperative project is being conducted to enable warfighters to train for coalition air operations while remaining at their home stations. Partner nations will develop distributed simulation technologies, implement a multi-national distributed training network, and conduct a series of coalition force training exercises. Warfighters will use real-time virtual simulators to conduct readiness training for combined air operations within a common synthetic environment. The program will support incorporation of USAF simulators located outside the Continental US into Distributed Mission Training exercises and will provide the foundation for integrating coalition partners' simulation assets into future multi-national training readiness exercises.	
(U) \$400	Distributed Mission Training (DMT) Technologies (AFRL/ Canada) - Planned cooperative project to develop DMT technologies that will	
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<p>(U) <u>A. Mission Description Continued</u></p> <p>(U) <u>FY 2004 (\$ in Thousands) Continued</u></p> <p>enhance allied simulator based training of fighter aircrews and demonstrate proof of concept. Project will complete research and development of next generation visual systems for DMT to include ultra-high resolution laser projector, image generator, and collimating display screen materials.</p> <p>(U) \$50 Enhanced C3 Team Training in Sustained Operations (AFRL / The Netherlands) - Planned cooperative project to evaluate team performance in advanced capabilities. This effort will evaluate the effects of fatigue on adaptive team performance in unpredictable, time-critical and long-duration high-ops tempo events. The primary goal will be to enhance a simulated environment for developing operational teamwork under wartime conditions characterized by mental fatigue, uncertainty, unexpected events, high-ops tempo, and/or sustained operations.</p> <p>(U) \$140 Fit and Accommodation Consulting Tools (AFRL / Canada, The Netherlands) - Planned cooperative project to develop web based, comprehensive, international data system on 3-D body size, shape, fit, and performance. The new data visualization tools will be used to make information more usable, and additional data on pilot performance will be more dynamic.</p> <p>(U) \$75 High-Power Microwave Narrowband Effects Investigations (AFRL / UK) - Planned cooperative project will conduct High-Power Microwave (HPM) electronics effects experiments in the UK. There is a need for HPM effects information on electronic systems in a statistically significant format with high confidence values in order to investigate the impact of future HPM systems on the battlefield. There is a need to perform test series in order to build up a library of electronic asset response distributions. This cooperative project will perform these needed experiments and tests.</p> <p>(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 FY04, analysis and review on the testing and development previously performed will begin.</p> <p>(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. In FY04, efforts will begin to develop and adapt the Libelle technology for insertion into USAF and NATO aircraft.</p> <p>(U) \$777 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 FY04, development, testing, and analyses will continue on promising electro optic protection measures (EOPM) materials, devices, and configurations for laser hazard and threat protection for eyes and sensors.</p>		
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<p>(U) <u>A. Mission Description Continued</u></p> <p>(U) <u>FY 2004 (\$ in Thousands) Continued</u></p> <p>(U) \$400 Programmable Integrated Ordnance Suite (PIOS) Phase II (AFRL/ UK) - Planned cooperative project to develop and demonstrate advanced missile ordnance technology. New ordnance suite capability will be achieved by coupling an ability to 'see' the target and select the best aimpoint with the ability to direct the warhead fragments to intercept the target at that specific aimpoint. This will be a continuation of Phase I PIOS.</p> <p>(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 FY04, the comparative assessment will continue. The development of night vision goggle and helmet mounted display interfaces, and the development of revised training approaches, will also continue.</p> <p>(U) \$750 Strike Warrior (AFRL/ UK) - Ongoing 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 FY04, flight testing and trials will continue.</p> <p>(U) \$250 Targets Under Trees (AFRL/ Sweden) - Planned cooperative project is to develop new capabilities to detect, locate and prosecute mobile or fixed Time Critical Targets (TCTs) in Camouflage, Concealment, and Deception (CC&D) conditions. The Target Under Trees (TUT) program is developing wide area surveillance (WAS) sensor which will provide an operationally significant probability of detecting targets in CC&D conditions with low false-alarm rates. The TUT sensor is being developed to be form, fit and function compatible with the Global Hawk UAV. In FY04, the TUT program will demonstrate this capability during the JEFX 04 exercise using a TUT-like sensor called CARABAS II. The funds will be used to test the CARABAS II system prior to the actual JEFX 04 exercise and insure the operation and compatibility of the CARABAS II within JEFX 04 environment and the TUT exploitation system.</p> <p>(U) \$135 Turbine Engine Particulate Matter Emissions (AEDC / UK) - Planned cooperative project to jointly evaluate state-of-the-art particulate measurement instrumentation, modify the instrumentation for robust operation in turbine test cells, develop particulate characterization test procedures, and validate the performance during gas turbine engine (GTE) testing. The project will produce test protocol, instrumentation and procedures, adequate to assess regulatory agency requirements for GTE particulate matter emissions.</p> <p>(U) \$200 Management and administrative support and travel</p>		
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<p>(U) <u>A. Mission Description Continued</u></p> <p>(U) <u>FY 2004 (\$ in Thousands) Continued</u></p> <p>(U) \$3,888 Total</p> <p>(U) <u>B. Budget Activity Justification</u></p> <p>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 2002</u></th> <th style="text-align: right;"><u>FY 2003</u></th> <th style="text-align: right;"><u>FY 2004</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;">5,256</td> <td style="text-align: right;">4,355</td> <td style="text-align: right;">3,977</td> <td style="text-align: right;">0</td> </tr> <tr> <td>(U) Appropriated Value</td> <td style="text-align: right;">5,256</td> <td style="text-align: right;">4,355</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;">-15</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 style="text-align: right;">-118</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 2003 PBR</td> <td style="text-align: right;">-11</td> <td></td> <td style="text-align: right;">-89</td> <td></td> </tr> <tr> <td>(U) Current Budget Submit/FY 2004 PBR</td> <td style="text-align: right;">5,230</td> <td style="text-align: right;">4,237</td> <td style="text-align: right;">3,888</td> <td style="text-align: right;">TBD</td> </tr> </tbody> </table> <p>(U) <u>Significant Program Changes:</u> Change Summary Explanation: N/A</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="text-align: right;"><u>FY 2002</u></th> <th style="text-align: right;"><u>FY 2003</u></th> <th style="text-align: right;"><u>FY 2004</u></th> <th style="text-align: right;"><u>FY 2005</u></th> <th style="text-align: right;"><u>FY 2006</u></th> <th style="text-align: right;"><u>FY 2007</u></th> <th style="text-align: right;"><u>FY 2008</u></th> <th style="text-align: right;"><u>FY 2009</u></th> <th style="text-align: right;"><u>Cost to</u></th> <th style="text-align: right;"><u>Total Cost</u></th> </tr> <tr> <td></td> <th style="text-align: right;"><u>Actual</u></th> <th style="text-align: right;"><u>Estimate</u></th> <th style="text-align: right;"><u>Estimate</u></th> <th style="text-align: right;"><u>Estimate</u></th> <th style="text-align: right;"><u>Estimate</u></th> <th style="text-align: right;"><u>Estimate</u></th> <th style="text-align: right;"><u>Estimate</u></th> <th style="text-align: right;"><u>Estimate</u></th> <th style="text-align: right;"><u>Complete</u></th> <td></td> </tr> </thead> <tbody> <tr> <td>(U) Program Management</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>									<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>Total Cost</u>	(U) Previous President's Budget	5,256	4,355	3,977	0	(U) Appropriated Value	5,256	4,355			(U) Adjustments to Appropriated Value					a. Congressional/General Reductions	-15				b. Small Business Innovative Research					c. Omnibus or Other Above Threshold Reprogram		-118			d. Below Threshold Reprogram					e. Rescissions					(U) Adjustments to Budget Years Since FY 2003 PBR	-11		-89		(U) Current Budget Submit/FY 2004 PBR	5,230	4,237	3,888	TBD		<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>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>		<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>		(U) Program Management										
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BUDGET ACTIVITY
04 - Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE
0603790F NATO Cooperative R&D

PROJECT
NATO

(U) E. Acquisition Strategy

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 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 2002</u>				<u>FY 2003</u>				<u>FY 2004</u>			
	1	2	3	4	1	2	3	4	1	2	3	4
(U) Strike Warrior Project												
(U) - Begin strike system simulations	*	*	*	*								
(U) - Flight tests and trials	*	*	*	*	*	X	X	X				
(U) Cooperative R&D Efforts in Imaging Spectrometer Development Project												
(U) - Lab instrument checkout	*											
(U) - Prototype checkout			*	*								
(U) - Instrument ruggedization				*	*	X						
(U) - Field testing								X	X			
(U) Effects of Ionization on Hydrocarbon Combustion Project												
(U) - Complete computational tools	*											
(U) - Begin combustion experiments	*	*	*									
(U) - Complete combustion experiments				*								
(U) - Data analysis and model validation				*								
(U) - Final report				*								
(U) Integrated Tactical Aircraft Control (ITAC) Program												
(U) - Simulation and evaluation	*	*	*	*								

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BUDGET ACTIVITY					PE NUMBER AND TITLE					PROJECT		
04 - Advanced Component Development and Prototypes (ACD&P)					0603790F NATO Cooperative R&D					NATO		
(U) F. Schedule Profile Continued												
		FY 2002				FY 2003				FY 2004		
	1	2	3	4	1	2	3	4	1	2	3	4
(U)	- Schedule and technology sharing development meetings	*	*	*	*							
(U)	- Agent maturation requirements and develop of delivery schedule			*	*		X					
(U)	- Joint demonstration preparation				*	X	X					
(U)	- Joint demonstration						X	X	X			
(U)	Distributed Mission Training (DMT) Technologies Project											
(U)	- CF-18 modernization enhancements	*	*	*	*							
(U)	- Visual display system/DMT control station	*	*	*	*							
(U)	Anthropometric Accommodation in Crew Systems Project											
(U)	- Augmented reality assessments	*	*									
(U)	- 3-D data reduction	*	*									
(U)	- Compare live subject, computer model, and augmented reality result	*	*									
(U)	- Comparison of data from The Netherlands with the US	*										
(U)	- Complete final project documentation	*	*									
(U)	Air C3I Project											
(U)	- Scope work effort to achieve shared data environment	*										
(U)	- Develop translator extensions	*										
(U)	- US/NATO battle lab verification and development test		*									
(U)	- Examine US/NATO Concept of operations in coalition environment			*								
(U)	Coalition C3 Demonstration Environment Project											
(U)	- Network management integration	*	*	*	*							
(U)	- C3I application and integration demonstrations	*	*	*								
(U)	ATLANTIC PAW Project											
(U)	- Interpreter characterization/design	*	*									
(U)	- Allied waveform coding		*	*								
(U)	- Interop demo			*								
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(U) <u>F. Schedule Profile Continued</u>	<u>FY 2002</u>				<u>FY 2003</u>				<u>FY 2004</u>			
	1	2	3	4	1	2	3	4	1	2	3	4
(U) - Creation of WDE prototype	*	*										
(U) - Testing of WDE with WDL proposal		*	*	*								
(U) - SoRDS testbed					*	X	X					
(U) - FM3TR waveform implementation and analysis of SATURN requirements			*	*	*							
(U) - Interoperability testing of WDL waveforms							X	X				
(U) Scintillation Impacts on Communication and Navigation Systems Project												
(U) - Characterize local disturbance climatology	*											
(U) - Develop regional forecast algorithms			*									
(U) - Report regional scintillation & tailored products for C3I sys				*								
(U) Engine Component Life Extension Project												
(U) - Advanced life prediction methodologies for ERLE	*	*	*	*								
(U) - Advanced nondestructive inspection/evaluation technology		*	*	*	*							
(U) - Advanced manufacture concepts/ technical development for ERLE				*	*	X	X					
(U) - Final report									X			
(U) Flight Test Demo of Mini Munitions Release from Internal Weapons Bay												
(U) - Amending PA and SSOI to include Phase II program			*	*	*							
(U) Distributed Mission Training & Virtual Air Environment Technologies												
(U) - Project Agreement signed		*										
(U) - F-18 software conversion		*	*	*	*							
(U) - Software rehost		*	*	*	*							
(U) - Visual research and display specification					*	X	X	X	X	X		
(U) - Long-haul networking and force construction						X	X	X	X	X	X	

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BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT				
04 - Advanced Component Development and Prototypes (ACD&P)				0603790F NATO Cooperative R&D				NATO				
(U) <u>F. Schedule Profile Continued</u>												
		<u>FY 2002</u>				<u>FY 2003</u>				<u>FY 2004</u>		
	1	2	3	4	1	2	3	4	1	2	3	4
(U) CAESAR Project												
(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) Flight Test Demo Mini Munitions Release from Internal Weaps Bay Ph 2												
(U) - Project agreement signed							X					
(U) - Test planning and preparation				*	*		X					
(U) - Test conduct and analyses							X	X		X		
(U) - Test report										X		
(U) Materials and Technologies for Reverse Saturable Absorption												
(U) - Project agreement signed							X					
(U) - Development, testing, and analyses							X	X		X		
(U) Novel G Protection for Fighter Pilots												
(U) - Project agreement signed				*								
(U) - Improvements development							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												
Project NATO				Page 13 of 19 Pages				Exhibit R-2 (PE 0603790F)				

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE February 2003				
BUDGET ACTIVITY					PE NUMBER AND TITLE					PROJECT				
04 - Advanced Component Development and Prototypes (ACD&P)					0603790F NATO Cooperative R&D					NATO				
(U) F. Schedule Profile Continued														
		<u>FY 2002</u>					<u>FY 2003</u>					<u>FY 2004</u>		
		1	2	3	4	1	2	3	4	1	2	3	4	
(U)	- Project agreement signed						*							
(U)	- Comparative assessment						X	X	X					
(U)	- Development of improvements						X	X	X					
(U)	Assessment of C3 Team Performance in Sustained Operations													
(U)	- Project agreement signed						X							
(U)	- Technology development						X	X	X	X				
(U)	- Experimental studies and data analysis									X	X	X	X	
(U)	C-2 Warrior													
(U)	- Project agreement signed							X						
(U)	- Development work-centered interface technologies							X	X	X	X	X	X	
(U)	- Test ISR Collection Manager against new requirements and situation											X	X	
(U)	Coalition Mission Training Using Distributed Mission Simulation													
(U)	- Project agreement signed						X							
(U)	- Develop and test basic systems for coalition operations						X	X	X					
(U)	- Conduct and document coalition exercises in real-time simulators									X	X	X	X	
(U)	Distributed Mission Training (DMT) Technologies													
(U)	- Signed international agreement						X	X						
(U)	- Technology development								X	X	X	X	X	
(U)	Fit and Accommodation Consulting Tools													
(U)	- Dynamic and performance data gathering									X	X	X	X	
(U)	- Digital pilot profiles and injury potential									X	X	X	X	
(U)	- Initial data collation and website prototype									X	X	X	X	
(U)	Enhanced C3 Team Training in Sustained Operations													
(U)	- Project agreement signed						X							
(U)	- Technology development						X	X	X	X	X			

Project NATO

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)							DATE February 2003					
BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT				
04 - Advanced Component Development and Prototypes (ACD&P)				0603790F NATO Cooperative R&D				NATO				
(U) <u>F. Schedule Profile Continued</u>												
		<u>FY 2002</u>				<u>FY 2003</u>				<u>FY 2004</u>		
	1	2	3	4	1	2	3	4	1	2	3	4
(U)	- Experimental studies and data analysis							X	X	X	X	X
(U)	High-Power Microwave Narrowband Effects Investigations											
(U)	- Test targets to build up electronic library								X	X	X	X
(U)	Programmable Integrated Ordnance Suite Phase II											
(U)	- Develop detailed design baseline					X		X	X	X		
(U)	- Test high fidelity model and performance analysis							X	X	X	X	X
(U)	- Report system performance results											X
(U)	Targets Under Trees											
(U)	- Project agreement signed						X					
(U)	- Test CARABAS II sensor for operation and compatibility					X	X	X	X			
(U)	- Test CARABAS II sensor in JEFX exercise									X		
(U)	Turbine Engine Particulate Matter Emissions											
(U)	- Project agreement signed						X					
(U)	- Technology development					X	X	X	X	X	X	X
(U)	- Test and analysis									X	X	X

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE February 2003		
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT		
04 - Advanced Component Development and Prototypes (ACD&P)	0603790F NATO Cooperative R&D	NATO		
(U) A. Project Cost Breakdown (\$ in Thousands)				
		<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>
(U) Advanced Hybrid Propulsion Technologies (AHPT)		493	0	0
(U) Air Command, Control, Communications, and Intelligence (C3I) Capabilities		100	0	0
(U) Advanced Transmission Language and Allocation of New Technology for International Communication and Proliferation of Allied Waveforms (ATLANTIC PAW)		450	358	0
(U) Assent of C3 Team Performance in Sustained Operations		0	0	100
(U) C-2 Warrior		0	0	261
(U) Coalition Aerial Surveillance And Reconnaissance (CAESAR)		1,500	0	0
(U) Coalition Command, Control, and Communications (C3) Demo Environment (CC3DE)		182	0	0
(U) Coalition Mission Training (CMT)		0	0	100
(U) Cooperative Research and Development (R&D) Efforts in Imaging Spectrometer Development		250	250	0
(U) Distributed Mission Training (DMT) and Virtual Air Environment (VAE) Technologies		250	250	0
(U) Distributed Mission Training (DMT) Technologies		460	0	0
(U) Distributed Mission Training (DMT) Technologies FY04 New Start		0	0	400
(U) Engine Component Life Extension		400	400	0
(U) Enhanced C3 Team Training in Sustained Operations		0	0	50
(U) Fit and Accommodation Consulting Tools		0	0	140
(U) Flight Test Demonstration of Miniature Munitions Release from Internal Weapons Bay Phase 2		0	799	0
(U) High-Power Microwave Narrowband Effects Investigations		0	0	75
(U) Integrated Tactical Aircraft Control (ITAC) Program		398	500	0
(U) Materials and Technologies for Reverse Saturable Absorption		0	150	150
(U) Novel G Protection for Fighter Pilots		0	50	50
(U) Optical Sensor Protection Development and Evaluation		0	100	777
(U) Programmable Integrated Ordnance Suite (PIOS) Phase II		0	0	400
(U) Targets Under Trees (TUT)		0	0	250
(U) Turbine Engine Particulate Matter Emissions		0	0	135
(U) Scintillation Impacts on Communication and Navigation Systems		300	0	0
Project NATO				

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2003				
BUDGET ACTIVITY 04 - Advanced Component Development and Prototypes (ACD&P)					PE NUMBER AND TITLE 0603790F NATO Cooperative R&D			PROJECT NATO			
(U) <u>A. Project Cost Breakdown (\$ in Thousands) Continued</u>											
						<u>FY 2002</u>		<u>FY 2003</u>		<u>FY 2004</u>	
(U)	Spatial Disorientation Countermeasures					0		50		50	
(U)	Strike Warrior					433		1,148		750	
(U)	Management and administrative support and travel					14		182		200	
(U)	Total					5,230		4,237		3,888	
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 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 2002</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget FY 2004</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Product Development Organizations</u>											
	Sytronics Dayton, OH	CPFF	Apr 98			600	0	0	0	Continuing	TBD
	Boston College Boston, MA	CFSR	Mar 97			155	0	0	0	Continuing	TBD
	RADEX Bedford, MA	CPFF	Mar 97			920	0	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	0	0	0	Continuing	TBD
	KEO Consultants Brookline, MA	CPFF	Mar 97			220	0	0	0	Continuing	TBD
	NW Research Associates Bellevue, WA	CPFF	Apr 97			110	0	0	0	Continuing	TBD
Project NATO											

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE			
BUDGET ACTIVITY							February 2003			
04 - Advanced Component Development and Prototypes (ACD&P)					PE NUMBER AND TITLE			PROJECT		
					0603790F NATO Cooperative R&D			NATO		
(U) Performing Organizations Continued:										
<u>Product Development Organizations</u>										
Visdyne Inc.	CPFF	Sep 00	400	0	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	0	0	0	Continuing	TBD		
UES, Inc Dayton, OH	CPFF	Oct 97	100	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	1,231	2,398	2,088	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		
AFRL Eglin AFB, FL	TBD	TBD	0	0	799	0	Continuing	TBD		
AFRL Hanscom AFB, MA	TBD	TBD	0	1,900	0	550	Continuing	TBD		
AFRL Mesa, AZ	TBD	TBD	0	710	250	300	Continuing	TBD		
AFRL Rome, NY	TBD	TBD	1,250	632	358	250	Continuing	TBD		
<u>Support and Management Organizations</u>										
AFRL Hanscom AFB, MA			135	0	0	0	Continuing	TBD		
AFRL WPAFB, OH			5	14	182	200	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		
Pender Technology, TN	CR	Oct 97	90	0	0	0	Continuing	TBD		

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE		
							February 2003		
BUDGET ACTIVITY				PE NUMBER AND TITLE			PROJECT		
04 - Advanced Component Development and Prototypes (ACD&P)				0603790F NATO Cooperative R&D			NATO		
(U) Performing Organizations Continued:									
<u>Support and Management Organizations</u>									
Veridian Dayton, OH				145	0	0	0	Continuing	TBD
<u>Test and Evaluation Organizations</u>									
Air Force Development Test Center, FL		PO	Jan 98	54	493	0	0	Continuing	TBD
Sverdrup Technology, Inc TN CPAF			Sep 95	1,443	0	0	0	Continuing	TBD
Naval Air Warfare CenterPoint Mugu, CA		MIPR	Jan 99	40	0	0	0	Continuing	TBD
Fora Laser System		PO	Nov 97	100	0	0	0	Continuing	TBD
Arnold Engineering Development Center, TN		TBD	TBD	0	250	250	500	Continuing	TBD
(U) Government Furnished Property:									
<u>Contract</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>Item</u>									
<u>Description</u>									
<u>Vehicle</u>									
<u>or Funding</u>									
<u>Obligation</u>									
<u>Date</u>									
<u>Date</u>									
<u>to FY 2002</u>									
<u>FY 2002</u>									
<u>FY 2003</u>									
<u>FY 2004</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	147
Subtotals									
Subtotal Product Development				8,041	4,473	3,805	3,188	TBD	TBD
Subtotal Support and Management				430	14	182	200	TBD	TBD
Subtotal Test and Evaluation				1,784	743	250	500	TBD	TBD
Total Project				10,255	5,230	4,237	3,888	TBD	TBD
Project NATO									

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 2003
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BUDGET ACTIVITY 04 - Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603791F International Space Cooperative R&D	PROJECT 5035
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COST (\$ in Thousands)	FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
5035 Intl Space Coop R&D	0	636	545	553	573	576	592	601	0	0
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

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.

(U) A. Mission Description

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)) and friendly foreign countries (Austria, Bulgaria, Finland, India, Singapore, South Africa, Sweden, Switzerland, and Ukraine). 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) Advanced Component Development and Prototypes (5) System Development and Demonstration and (6) RDT&E Management Support.

(U) FY 2002 (\$ in Thousands)

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

(U) FY 2003 (\$ in Thousands)

- (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

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 2003
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
04 - Advanced Component Development and Prototypes (ACD&P)	0603791F International Space Cooperative R&D	5035
<p>(U) <u>A. Mission Description Continued</u></p> <p>(U) <u>FY 2003 (\$ in Thousands) Continued</u></p> <p>as ground-based surveillance systems such as those employed for early missile warning and missile defense. In FY03, data collection will begin.</p> <p>(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.</p> <p>(U) \$93 Management and administrative support and travel.</p> <p>(U) \$636 Total</p> <p>(U) <u>FY 2004 (\$ in Thousands)</u></p> <p>(U) \$100 Hypersonic Airbreathing Propulsion Test (ESC, Germany) - Planned cooperative project will involve complementary testing of a hypersonic engine at both Arnold Air Force Base and Germany Aerospace Center facilities. Ancillary activities will also involve diagnostic and computer model development, application and analysis. New hypersonic flight systems will be similar to conventional aerospace systems, but they will provide their services faster and more routine access to space. Military access to space is the compelling rationale for the hypersonic engine testing. The US is not the leader in hypersonics, and gaining insight from allies is beneficial and will promote commonality.</p> <p>(U) \$100 Hyperspectral Data Exploitation Algorithm Development and Assessment (Air Force Research Lab (AFRL)/ Australia) - Ongoing cooperative project to develop approaches and technologies for improved space-based hyperspectral sensors. In FY04, data collection, data analysis, and algorithm validation will continue.</p> <p>(U) \$150 Impacts of the Space Environment on Communications, Navigation, and Surveillance Systems (AFRL/ The United Kingdom (UK)) - Ongoing 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 FY04, data collection will continue.</p> <p>(U) \$100 Measurement of High-Latitude Ionospheric Structures and System Effects from Northeast Greenland (AFRL/Denmark) - Planned cooperative project to accurately model, simulate, recognize, and forecast polar ionospheric conditions impacting DoD systems. The project will collect multi-instrument measurements of ionospheric conditions at Station Nord in Greenland for the purpose of furthering basic research into mechanisms creating ionospheric disturbances, improving high-latitude ionosphere models, simulations, and providing space weather situational awareness and forecast tools.</p> <p>(U) \$95 Space Vehicle Orbit Prediction (AFRL/ France) - Ongoing cooperative project to use data from a French accelerometer experiment currently on</p>		
Project 5035	Page 2 of 7 Pages	Exhibit R-2 (PE 0603791F)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 2003			
BUDGET ACTIVITY 04 - Advanced Component Development and Prototypes (ACD&P)		PE NUMBER AND TITLE 0603791F International Space Cooperative R&D			
		PROJECT 5035			
(U) <u>A. Mission Description Continued</u>					
(U) <u>FY 2004 (\$ in Thousands) Continued</u>					
orbit to improve the accuracy of upper atmospheric aerodynamic drag models. This will include solving for short term geomagnetic activity variations. In FY04, modeling algorithms to use the new data will be developed.					
(U)	\$0	No Activity			
(U)	\$545	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 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>Total Cost</u>
(U)	Previous President's Budget	0	0	657	
(U)	Appropriated Value				
(U)	Adjustments to Appropriated Value				
	a. Congressional/General Reductions				
	b. Small Business Innovative Research				
	c. Omnibus or Other Above Threshold Reprogram		-7		
	d. Below Threshold Reprogram				
	e. Rescissions				
(U)	Adjustments to Budget Years Since FY 2003 PBR		643	-112	
(U)	Current Budget Submit/FY 2004 PBR		636	545	
(U)	<u>Significant Program Changes:</u>				

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 2003				
BUDGET ACTIVITY 04 - Advanced Component Development and Prototypes (ACD&P)					PE NUMBER AND TITLE 0603791F International Space Cooperative R&D			PROJECT 5035				
(U) D. Other Program Funding Summary (\$ in Thousands)												
	<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>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>		
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>			
(U) AF RDT&E												
(U) Other APPN												
(U) 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 2002</u>				<u>FY 2003</u>			<u>FY 2004</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						X						
(U) - Data collection						X	X	X				
(U) - Data analysis and algorithm validation							X	X				
(U) - Interim report								X				
(U) Impacts of the Space Environment on Comm, Nav, and Surv Sys												
(U) - Project Agreement signed						X	X					
(U) - Data collection							X	X				
(U) Space Vehicle Orbit Prediction												
(U) - Project Agreement signed						X	X					
Project 5035												

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)							DATE February 2003					
BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT				
04 - Advanced Component Development and Prototypes (ACD&P)				0603791F International Space Cooperative R&D				5035				
(U) F. Schedule Profile Continued												
		<u>FY 2002</u>				<u>FY 2003</u>				<u>FY 2004</u>		
	1	2	3	4	1	2	3	4	1	2	3	4
(U)	- Algorithm development					X		X				
(U)	Hypersonic Airbreathing Propulsion Test											
(U)	- Project agreement signed					X		X				
(U)	- Development of computer software							X	X	X	X	X
(U)	- Data collection begins								X	X	X	X
(U)	Measurement of High-Latitude Ionospheric Structures and System Effects											
(U)	- Project agreement signed					X		X				
(U)	- Data collection begins							X	X	X	X	X
Project 5035												
Page 5 of 7 Pages												
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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2003			
BUDGET ACTIVITY				PE NUMBER AND TITLE			PROJECT			
04 - Advanced Component Development and Prototypes (ACD&P)				0603791F International Space Cooperative R&D			5035			
(U) A. Project Cost Breakdown (\$ in Thousands)										
					<u>FY 2002</u>			<u>FY 2003</u>		<u>FY 2004</u>
(U)	Hyperspectral Data Exploitation Algorithm Development and Assessment				0			200		100
(U)	Impacts of the Space Environment on Communications, Navigation, and Surveillance Systems				0			300		150
(U)	Space Vehicle Orbit Prediction							43		95
(U)	Hypersonic Airbreathing Propulsion Test									100
(U)	Measurement of High-Latitude Ionospheric Structures and System Effects from Northeast Greenland									100
(U)	Management support							93		0
(U)	Total				0			636		545
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 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 2002</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget FY 2004</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Product Development Organizations</u>										
AFRL Hanscom AFB, MA	TBD	TBD			0	0	636	345	Continuing	TBD
AFRL, WPAFB								100		100
ESC								100		100
<u>Support and Management Organizations</u>										
AFRL, WPAFB	TBD	TBD			0	0	0	0	Continuing	TBD
<u>Test and Evaluation Organizations</u>										
TBD	TBD	TBD			0	0	0		Continuing	TBD
Project 5035					Page 6 of 7 Pages			Exhibit R-3 (PE 0603791F)		

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)					DATE February 2003				
BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT	
04 - Advanced Component Development and Prototypes (ACD&P)				0603791F International Space Cooperative R&D				5035	
(U) Government Furnished Property:									
	<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>Item</u>	<u>Method/Type</u>	<u>Obligation</u>	<u>Date</u>	<u>to FY 2002</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</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 2002</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>Complete</u>	<u>Program</u>
Subtotal Product Development				0	0	636	545	TBD	TBD
Subtotal Support and Management				0	0	0	0	TBD	TBD
Subtotal Test and Evaluation				0	0	0		TBD	TBD
Total Project				0	0	636	545	TBD	TBD

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE
February 2003

BUDGET ACTIVITY
04 - Advanced Component Development and Prototypes
(ACD&P)

PE NUMBER AND TITLE
0603845F ADVANCED WIDEBAND SYSTEM (AWS) **PROJECT**
4944

COST (\$ in Thousands)		FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
4944	ADVANCED WIDEBAND SYSTEM	0	117,953	439,277	877,504	1,183,185	1,327,256	1,530,969	736,938	274,737	6,487,819
	Quantity of RDT&E Articles	0	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 MILSATCOM services as defined by the Transformational Communications Architecture (TCA) analysis of alternatives. The TCA analysis of alternatives will define a network-centric SATCOM architecture with improved connectivity and data transfer capability that will remove bandwidth constraints for global U.S. requirements across DoD.

The AWS portion of the TCA will incorporate interoperable radio frequency (RF) and laser SATCOM to meet defense and intelligence communities' requirements for high data rate protected communications. The space segment will make use of key technology advancements where feasible to achieve a transformational leap in SATCOM capabilities. These technologies include but are not limited to: laser communications, packet switching, bulk and packet encryption/decryption, communications-on-the-move antennas, dynamic bandwidth and resource allocation techniques, protected bandwidth efficient modulation, and etc. The AWS portion will also address the associated ground command and control segment for the satellite system(s), as well as, any required gateways. The goal of the TCA is to launch the first satellite with these transformational capabilities as early as CY2009.

In order to ensure TCA/AWS interoperability with the Global Information Grid (GIG) Integrated Architecture, this program will participate in a GIG end-to-end test bed and systems engineering activity. Aspects of the net-centric GIG which TCA/AWS must be interoperable with include, but are not limited to, Information Assurance (IA), Network Operations (NetOps), and Information Dissemination Management (IDM).

(U) FY 2002 (\$ in Thousands)

- (U)** \$0 Accomplishments/Planned Program
- (U)** \$0 No Activity (see PE0 063436F for TCA related activities)
- (U)** \$0 Total

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 2003																																			
BUDGET ACTIVITY 04 - Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603845F ADVANCED WIDEBAND SYSTEM (AWS)	PROJECT 4944																																			
<p>(U) <u>A. Mission Description Continued</u></p> <p>(U) <u>FY 2003 (\$ in Thousands)</u></p> <p>(U) \$0 Accomplishments/Planned Program</p> <p>(U) \$88,237 System Definition - technology maturation efforts</p> <p>(U) \$16,000 System Definition - architecture study and program(s) definition efforts</p> <p>(U) \$8,400 Technical Support</p> <p>(U) \$5,316 Program Support</p> <p>(U) \$117,953 Total</p> <p>(U) <u>FY 2004 (\$ in Thousands)</u></p> <p>(U) \$0 Accomplishments/Planned Program</p> <p>(U) \$418,277 System Definition: Continue technology development for key advanced technologies to include laser communications, antenna design, encryption technologies, dynamic bandwidth and resource allocation, bandwidth efficient modulation, network operations, and networking protocols. Initiate engineering design activities including risk reduction and design development for the first transformational comm satellite system.</p> <p>(U) \$21,000 Continued Program Office and other related support activities</p> <p>(U) \$439,277 Total</p> <p>(U) <u>B. Budget Activity Justification</u> Funding is in Budget Activity 4, Advanced Component Development and Prototypes, since it supports the TCA technology definition, development, demonstration and validation.</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 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>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;">4,982</td> <td style="text-align: center;">15,130</td> <td style="text-align: center;">977,095</td> </tr> <tr> <td>(U) Appropriated Value</td> <td style="text-align: center;">0</td> <td style="text-align: center;">119,982</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;">-1,268</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 style="text-align: center;">-761</td> <td></td> <td></td> </tr> </tbody> </table>				<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>Total Cost</u>	(U) Previous President's Budget	0	4,982	15,130	977,095	(U) Appropriated Value	0	119,982			(U) Adjustments to Appropriated Value					a. Congressional/General Reductions		-1,268			b. Small Business Innovative Research					c. Omnibus or Other Above Threshold Reprogram		-761		
	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>Total Cost</u>																																	
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Project 4944	Page 2 of 6 Pages	Exhibit R-2 (PE 0603845F)																																			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)							DATE February 2003				
BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT			
04 - Advanced Component Development and Prototypes (ACD&P)				0603845F ADVANCED WIDEBAND SYSTEM (AWS)				4944			
(U) C. Program Change Summary (\$ in Thousands) Continued											
				<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>			<u>Total Cost</u>		
	d. Below Threshold Reprogram										
	e. Rescissions										
(U)	Adjustments to Budget Years Since FY 2003 PBR						424,147		5,510,724		
(U)	Current Budget Submit/FY 2004 PBR				0	117,953	439,277		6,487,819		
(U)	<u>Significant Program Changes:</u>										
	The FY03 Appropriations Act transferred funds for TCA efforts in PE 0603436F to this PE (0603845F). The current funds in this PE support analysis of alternatives and concept/system definition efforts on the network-centric SATCOM system architecture. Funding beyond FY04 will support continued system definition and system development & demonstration.										
(U) D. Other Program Funding Summary (\$ in Thousands)											
		<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>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
		<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U)	AF RDT&E										
(U)	PE 0603854, Project 644870, CCS-C, Line 52	16,543	11,836	36,992	20,350	8,292	7,013	5,704	6,397	Continuing	
(U)	PE 0603854, Project 644811, WGS	79,855	1,965	0	53,341	7,702	2,296				145,159
(U)	PE0603436F, Transformation Wideband MILSATCOM	9,972									9,972
(U)	Other APPN										
(U)	MPAF, PE 0303600F, WGS	361,272	188,232	34,588	21,505	60,420	267,688	178,030	43,694	Continuing	
(U)	MPAF, PE 0303602, AF AWS						187,816	1,198,822	1,218,485	Continuing	
(U)	OPAF, PE 0303600F, CCS-C		5,543	8,109	2,135	289					16,076
(U)	OPAF, PE 030600F, WGS		15,933	11,864							27,797
Project 4944											

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE February 2003																																																					
BUDGET ACTIVITY 04 - Advanced Component Development and Prototypes (ACD&P)					PE NUMBER AND TITLE 0603845F ADVANCED WIDEBAND SYSTEM (AWS)					PROJECT 4944																																																					
<p>(U) <u>E. Acquisition Strategy</u> The Transformational Communications activities in FY03 will define a network-centric SATCOM architecture of which AWS will provide SATCOM capabilities. After architecture definition in FY03, program specific system definition contracts will be awarded to at least two industry teams for the DoD SATCOM components of TCA.</p> <p>(U) <u>F. Schedule Profile</u></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:35%;"></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> <th colspan="4" style="text-align: center;"><u>FY 2004</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) Architecture Approval</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><td></td> </tr> <tr> <td>(U) AWS 1 Launch Decision Review</td> <td></td><td></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> </tr> </tbody> </table> <p>X = Planned Event * = Completed Event</p>													<u>FY 2002</u>				<u>FY 2003</u>				<u>FY 2004</u>					1	2	3	4	1	2	3	4	1	2	3	4	(U) Architecture Approval									X				(U) AWS 1 Launch Decision Review												X
	<u>FY 2002</u>				<u>FY 2003</u>				<u>FY 2004</u>																																																						
	1	2	3	4	1	2	3	4	1	2	3	4																																																			
(U) Architecture Approval									X																																																						
(U) AWS 1 Launch Decision Review												X																																																			
Project 4944				Page 4 of 6 Pages				Exhibit R-2 (PE 0603845F)																																																							

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2003			
BUDGET ACTIVITY					PE NUMBER AND TITLE			PROJECT		
04 - Advanced Component Development and Prototypes (ACD&P)					0603845F ADVANCED WIDEBAND SYSTEM (AWS)			4944		
(U) A. Project Cost Breakdown (\$ in Thousands)										
						<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>		
(U)	System Definition - technology maturation					0	88,237	201,400		
(U)	System Definition - architecture study & program(s) definition						16,000	216,877		
(U)	Technical Support						8,400	0		
(U)	Program Support						5,316	21,000		
(U)	Total					0	117,953	439,277		
(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 2002</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget FY 2004</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>										
Boeing: Architecture SD	CPAF	Oct 02	5,333	5,333	0	0	5,333	0	0	5,333
LMMS: Architecture SD	CPAF	Oct 02	5,333	5,333	0	0	5,333	0	0	5,333
Spectrum Astro: Architecture SD	CPAF	Oct 02	5,334	5,334	0	0	5,334	0	0	5,334
Program System Definition	CPAF	Oct 03	275,600	275,600	0	0	0	216,877	48,000	264,877
System Development & Demonstration		FY05			0	0	0	0	5,359,030	5,359,030
System Definition: Technology Maturation	Various	Various			0	0	88,237	201,400	295,000	584,637
<u>Support and Management Organizations</u>										
Technical Support	Various	Various			0	0	8,400			8,400
Program Support	Various	Various			0	0	5,316	21,000	228,200	254,516
<u>Test and Evaluation Organizations</u>										

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)				DATE					
BUDGET ACTIVITY				PROJECT					
04 - Advanced Component Development and Prototypes (ACD&P)				0603845F ADVANCED WIDEBAND SYSTEM (AWS) 4944					
(U) <u>Government Furnished Property:</u>									
<u>Item</u>	<u>Contract Method/Type or Funding Vehicle</u>	<u>Award or Obligation Date</u>	<u>Delivery Date</u>	<u>Total Prior to FY 2002</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget FY 2004</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									
				<u>Total Prior to FY 2002</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget FY 2004</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Subtotals</u>									
Subtotal Product Development				0	0	104,237	418,277	5,702,030	6,224,544
Subtotal Support and Management				0	0	13,716	21,000	228,200	262,916
Subtotal Test and Evaluation									
Total Project				0	0	117,953	439,277	5,930,230	6,487,460

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE
February 2003

BUDGET ACTIVITY 04 - Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603850F Integrated Broadcast Service (DEM/VAL)	PROJECT 4778
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COST (\$ in Thousands)	FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
4778 Integrated Broadcast Service	16,639	38,390	16,466	23,990	20,210	20,857	21,286	21,572	Continuing	TBD
Quantity of RDT&E Articles	0	1	1	2	0	0	0	0	Continuing	TBD

(U) A. Mission Description

The Integrated Broadcast Service (IBS) provides war fighters 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 Combatant Commanders; built to requirements as set forth in the Joint Operational Requirements Document. Functional characteristics include:

- 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 combatant commander validated priorities.
- Disseminate intelligence over communications paths available to the end user.

(U) FY 2002 (\$ in Thousands)

- (U) \$0 Accomplishments/Planned Program
- (U) \$3,013 Maintained a Program Management Office, including program supervision, finance and acquisition strategy execution
- (U) \$1,908 Continued systems engineering, including maintenance of architectures, System of Systems management through the Joint Broadcast Change Control Board (JBCCB) and Risk Reduction Studies using Simulation Based Acquisition (SBA) tools.
- (U) \$9,378 Continued the design and build of Information Management Elements (Phase II)
- (U) \$2,242 Continued Common Message Format (CMF) development.
- (U) \$98 Test & Evaluation
- (U) \$16,639 Total

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 2003
BUDGET ACTIVITY 04 - Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603850F Integrated Broadcast Service (DEM/VAL)	PROJECT 4778
<p>(U) <u>A. Mission Description Continued</u></p> <p>(U) <u>FY 2003 (\$ in Thousands)</u></p> <p>(U) \$0 Accomplishments/Planned Program</p> <p>(U) \$800 Maintain a Program Management Office, including program supervision, finance and acquisition strategy execution.</p> <p>(U) \$1,960 Continue systems engineering, including development of architectures, System of Systems management through the JBCCB and Risk Reduction Studies using SBA tools.</p> <p>(U) \$14,884 Continue the design and build of Information Management Elements (Phase II)</p> <p>(U) \$946 Continue Common Message Format (CMF) development</p> <p>(U) \$600 Continue Test & Evaluation</p> <p>(U) \$19,200 Continue spiral development efforts on IBS Informational Element (IME) through 'Smart Pull' Capability and increased/improved dissemination processes.</p> <p>(U) \$38,390 Total</p> <p>(U) <u>FY 2004 (\$ in Thousands)</u></p> <p>(U) \$0 Accomplishments/Planned Program</p> <p>(U) \$800 Maintain a Program Management Office, including program supervision, finance and acquisition strategy execution</p> <p>(U) \$1,400 Continue systems engineering, including development of architectures, System of Systems management through the JBCCB and Risk Reduction Studies using SBA tools.</p> <p>(U) \$10,985 Continue the design and build of Information Management Elements (Phase II)</p> <p>(U) \$2,681 Continue Common Message Format (CMF) development.</p> <p>(U) \$600 Continue Test & Evaluation.</p> <p>(U) \$16,466 Total</p> <p>(U) <u>B. Budget Activity Justification</u> 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 2003					
BUDGET ACTIVITY				PE NUMBER AND TITLE			PROJECT					
04 - Advanced Component Development and Prototypes (ACD&P)				0603850F Integrated Broadcast Service (DEM/VAL)			4778					
(U) C. Program Change Summary (\$ in Thousands)												
				<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>		<u>Total Cost</u>				
(U)	Previous President's Budget			17,149	19,870	9,734		TBD				
(U)	Appropriated Value			20,529	19,870			TBD				
(U)	Adjustments to Appropriated Value											
	a. Congressional/General Reductions			-3,461	-72							
	b. Small Business Innovative Research											
	c. Omnibus or Other Above Threshold Reprogram				-196							
	d. Below Threshold Reprogram			-429								
	e. Rescissions				-412							
(U)	Adjustments to Budget Years Since FY 2003 PBR				19,200	6,732						
(U)	Current Budget Submit/FY 2004 PBR			16,639	38,390	16,466		TBD				
(U)	<u>Significant Program Changes:</u>											
	(N/A)											
(U) D. Other Program Funding Summary (\$ in Thousands)												
		<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>FY 2008</u>	<u>FY 2009</u>		<u>Cost to</u>	<u>Total Cost</u>
		<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>		<u>Complete</u>	
(U)	OPAF/PE0305179F	0	13,488	7,232	10,817	11,110	11,728	11,980	12,178			TBD
(U)	O&M/PE0305179F	31,749	17,090	16,437	16,560	18,670	17,744	18,226	18,422			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 2002</u>		<u>FY 2003</u>		<u>FY 2004</u>				

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE February 2003		
BUDGET ACTIVITY					PE NUMBER AND TITLE					PROJECT		
04 - Advanced Component Development and Prototypes (ACD&P)					0603850F Integrated Broadcast Service (DEM/VAL)					4778		
(U) <u>F. Schedule Profile Continued</u>												
		<u>FY 2002</u>				<u>FY 2003</u>				<u>FY 2004</u>		
	1	2	3	4	1	2	3	4	1	2	3	4
(U) Spiral I PDR	*											
(U) Spiral I Integration Test		*										
(U) Spiral I Capability Demonstration			*									
(U) Common Message Format												
(U) - Interim Development Complete				*								
(U) Spiral II PDR				*								
(U) Spiral II Final Design Review						X						
(U) Spiral II Integration Test									X			
(U) Spiral II SIOC (Single Initial Operational Capability)									X			
(U) Spiral III PDR									X			
(U) Spiral III Final Design Review										X		
* - Denotes completed event												
X - Denotes planned event												
Project 4778				Page 4 of 6 Pages				Exhibit R-2 (PE 0603850F)				

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2003				
BUDGET ACTIVITY					PE NUMBER AND TITLE				PROJECT		
04 - Advanced Component Development and Prototypes (ACD&P)					0603850F Integrated Broadcast Service (DEM/VAL)				4778		
(U) A. Project Cost Breakdown (\$ in Thousands)											
						<u>FY 2002</u>		<u>FY 2003</u>		<u>FY 2004</u>	
(U)	Program Management					3,013		800		800	
(U)	System Engineering					1,908		1,960		1,400	
(U)	Information Management Element (Phase I & Phase II)					9,378		34,084		10,985	
(U)	Common Message Format Development					2,242		946		2,681	
(U)	Test & Evaluation					98		600		600	
(U)	Total					16,639		38,390		16,466	
(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 2002</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget FY 2004</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Product Development Organizations</u>											
	Lockheed Martin (Phase I)	FFP	June 00	2,000	2,000	2,000	0	0	0	0	2,000
	BTG, Inc. (Phase I)	FFP	June 00	2,000	2,000	2,000	0	0	0	0	2,000
	TRW, Inc. (Phase I)	FFP	June 00	2,000	2,000	2,000	0	0	0	0	2,000
	BTG, Inc./Titan (Phase II)	CPAF	May 01	59,323	59,323	10,200	9,378	34,084	10,985	Continuing	TBD
	Raytheon	FFP	Nov 00	7,244	7,244	3,910	1,034	300	2,000	0	7,244
	E-Systems/L3Comm-CMF										
	SAIC (CMF)	FFP	Sept 02	TBD	TBD	400	1,208	646	681	0	2,935
<u>Support and Management Organizations</u>											
	MITRE/ITSP	CPFF	Oct 98	TBD	TBD	7,486	4,921	2,760	2,200	Continuing	TBD
<u>Test and Evaluation Organizations</u>											
	JITC/46th OSS	MIPR	Ongoing	TBD	TBD	380	98	600	600	Continuing	TBD

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)					DATE February 2003				
BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT	
04 - Advanced Component Development and Prototypes (ACD&P)				0603850F Integrated Broadcast Service (DEM/VAL)				4778	
(U) Government Furnished Property:									
<u>Item</u>	<u>Contract Method/Type or Funding Vehicle</u>	<u>Award or Obligation Date</u>	<u>Delivery Date</u>	<u>Total Prior to FY 2002</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget FY 2004</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Product Development Property</u>									
TBD				0				Continuing	TBD
<u>Support and Management Property</u>									
TBD				0				Continuing	TBD
<u>Test and Evaluation Property</u>									
TBD				0				Continuing	TBD
<u>Subtotals</u>				<u>Total Prior to FY 2002</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget FY 2004</u>	<u>Budget to Complete</u>	<u>Total Program</u>
Subtotal Product Development				20,510	11,620	35,030	13,666	TBD	TBD
Subtotal Support and Management				7,486	4,921	2,760	2,200	TBD	TBD
Subtotal Test and Evaluation				380	98	600	600	TBD	TBD
Total Project				28,376	16,639	38,390	16,466	TBD	TBD

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

February 2003

BUDGET ACTIVITY

04 - Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0603851F ICBM - DEM/VAL

COST (\$ in Thousands)	FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	44,409	62,087	67,632	91,992	86,901	83,428	84,682	85,919	Continuing	TBD
1020 ICBM Guidance Applications	16,906	24,552	18,158	20,423	20,859	18,530	20,772	21,050	Continuing	TBD
1021 ICBM Propulsion Applications	1,550	4,281	24,356	41,399	42,042	42,064	39,777	40,386	Continuing	TBD
1022 ICBM Reentry Vehicle Applications	19,841	24,530	17,181	20,423	21,023	19,920	21,213	21,515	Continuing	TBD
1023 Rocket System Launch Program	3,521	31	31	33	33	34	35	35	Continuing	TBD
1024 ICBM Command & Control (C2) Applications	409	1,412	433	444	458	465	471	477	Continuing	TBD
4209 Long Range Planning (LRP)	2,182	7,281	7,473	9,270	2,486	2,415	2,414	2,456	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

In FY2004, Project 4209 Long Range Planning includes a new start effort for Analysis of Alternatives for follow on Land-Based Strategic Nuclear Deterrent (LBSND).

(U) A. Mission Description

This program's efforts identify methods to reduce life cycle costs, improve nuclear safety and surety, 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.

(U) B. Budget Activity Justification

This program is in Budget Activity 04 - Advanced Concept Development and Prototypes because the efforts demonstrate technology, component and subsystem maturity and provide risk reduction.

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE
February 2003

BUDGET ACTIVITY
04 - Advanced Component Development and Prototypes
(ACD&P)

PE NUMBER AND TITLE
0603851F ICBM - DEM/VAL

(U) <u>C. Program Change Summary (\$ in Thousands)</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>Total Cost</u>
(U) Previous President's Budget	47,519	63,025	54,198	TBD
(U) Appropriated Value	47,984	63,025		
(U) Adjustments to Appropriated Value				
a. Congressional/General Reductions	-681	-667		
b. Small Business Innovative Research	-2,894			
c. Omnibus or Other Above Threshold Reprogram		-271		
d. Below Threshold Reprogram				
e. Rescissions				
(U) Adjustments to Budget Years Since FY 2003 PBR			13,434	
(U) Current Budget Submit/FY 2004 PBR	44,409	62,087	67,632	TBD

(U) Significant Program Changes:

FY04: Includes adjustments to ICBM Propulsion Applications to support Nuclear Posture Review - recommended static fire demonstrations, and to ICBM Guidance Applications and Reentry Vehicle Applications.

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)

DATE
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BUDGET ACTIVITY
04 - Advanced Component Development and Prototypes
(ACD&P)

PE NUMBER AND TITLE
0603851F ICBM - DEM/VAL

PROJECT
1020

COST (\$ in Thousands)	FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
1020 ICBM Guidance Applications	16,906	24,552	18,158	20,423	20,859	18,530	20,772	21,050	Continuing	TBD

(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, Commander, USSTRATCOM guidance, and the Defense Science Board Task Force on Nuclear Deterrence. Efforts within this project are focused on current and future requirements, 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.

Budget Activity Justification:

This program is in Budget Activity 04 - Advanced Concept Development and Prototypes because the efforts demonstrate technology, component, and subsystem maturity and provide risk reduction.

(U) FY 2002 (\$ in Thousands)

- (U) \$0** Accomplishments/Planned Program
- (U) \$5,021** Continued development and prototype of concepts for future common strategic guidance system technology
- (U) \$2,948** Continued development of radiation hard application-specific integrated circuits (ASICs) and high throughput microprocessor
- (U) \$8,937** Continued development and test of alternate instrument technology -- e.g. Accelerometer, Gyro, micro-electrical mechanical (MEMs)
- (U) \$16,906** Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)							DATE February 2003																																																													
BUDGET ACTIVITY 04 - Advanced Component Development and Prototypes (ACD&P)				PE NUMBER AND TITLE 0603851F ICBM - DEM/VAL		PROJECT 1020																																																														
<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) \$0</td> <td>Accomplishments/Planned Program</td> </tr> <tr> <td>(U) \$7,139</td> <td>Continue development and prototype of concepts for future common strategic guidance system technology</td> </tr> <tr> <td>(U) \$3,447</td> <td>Continue assessment, evaluation and test of radiation hard electronics for strategic guidance applications</td> </tr> <tr> <td>(U) \$8,668</td> <td>Continue development and test of alternate instrument technology (e.g. Accelerometer, Gyro, MEMs)</td> </tr> <tr> <td>(U) \$5,298</td> <td>Assess, develop and implement flight test experiment options to demonstrate future strategic guidance system concepts</td> </tr> <tr> <td>(U) \$24,552</td> <td>Total</td> </tr> </table> <p>(U) <u>FY 2004 (\$ in Thousands)</u></p> <table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:10%;">(U) \$0</td> <td>Accomplishments/Planned Program</td> </tr> <tr> <td>(U) \$4,563</td> <td>Continue development and prototype of concepts for future common strategic guidance system technology</td> </tr> <tr> <td>(U) \$1,851</td> <td>Continue assessment, evaluation and test of radiation hard electronics for strategic guidance applications</td> </tr> <tr> <td>(U) \$5,722</td> <td>Continue development and test of alternate instrument technology (e.g. Accelerometer, Gyro, MEMs)</td> </tr> <tr> <td>(U) \$6,022</td> <td>Assess, develop and implement flight test experiment options to demonstrate future strategic guidance system concepts</td> </tr> <tr> <td>(U) \$18,158</td> <td>Total</td> </tr> </table> <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 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>FY 2008</u></th> <th style="width:10%;"><u>FY 2009</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>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><td></td> </tr> </tbody> </table> <p>(U) <u>D. Acquisition Strategy</u> Accomplish studies, analyses, and limited engineering/pre-prototype hardware development. 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;"> <tr> <td style="width:40%;"></td> <td style="width:20%; text-align: center;"><u>FY 2002</u></td> <td style="width:20%; text-align: center;"><u>FY 2003</u></td> <td style="width:20%; text-align: center;"><u>FY 2004</u></td> </tr> </table>								(U) \$0	Accomplishments/Planned Program	(U) \$7,139	Continue development and prototype of concepts for future common strategic guidance system technology	(U) \$3,447	Continue assessment, evaluation and test of radiation hard electronics for strategic guidance applications	(U) \$8,668	Continue development and test of alternate instrument technology (e.g. Accelerometer, Gyro, MEMs)	(U) \$5,298	Assess, develop and implement flight test experiment options to demonstrate future strategic guidance system concepts	(U) \$24,552	Total	(U) \$0	Accomplishments/Planned Program	(U) \$4,563	Continue development and prototype of concepts for future common strategic guidance system technology	(U) \$1,851	Continue assessment, evaluation and test of radiation hard electronics for strategic guidance applications	(U) \$5,722	Continue development and test of alternate instrument technology (e.g. Accelerometer, Gyro, MEMs)	(U) \$6,022	Assess, develop and implement flight test experiment options to demonstrate future strategic guidance system concepts	(U) \$18,158	Total		<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>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>		<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>		(U) None.												<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>
(U) \$0	Accomplishments/Planned Program																																																																			
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Project 1020		Page 4 of 30 Pages		Exhibit R-2A (PE 0603851F)																																																																

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)							DATE February 2003					
BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT				
04 - Advanced Component Development and Prototypes (ACD&P)				0603851F ICBM - DEM/VAL				1020				
(U) E. Schedule Profile Continued												
		<u>FY 2002</u>				<u>FY 2003</u>				<u>FY 2004</u>		
	1	2	3	4	1	2	3	4	1	2	3	4
(U)	Development/Demonstration of Future Common System Concepts (Ongoing)											
(U)	-- Progress Reports											
(U)	Alternate Instrument Technology Development (Ongoing)											
(U)	-- Progress Report											
(U)	Radiation Hardened Parts Analysis (Ongoing)											
(U)	-- Progress Report											
(U)	Flight Test Options Analysis											
(U)	-- Progress Report											
	* - Completed Event X - Planned Event											
<p align="left">Project 1020</p> <p align="center">Page 5 of 30 Pages</p> <p align="right">Exhibit R-2A (PE 0603851F)</p>												

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)						DATE February 2003					
BUDGET ACTIVITY				PE NUMBER AND TITLE			PROJECT				
04 - Advanced Component Development and Prototypes (ACD&P)				0603851F ICBM - DEM/VAL			1020				
(U) A. Project Cost Breakdown (\$ in Thousands)											
						<u>FY 2002</u>		<u>FY 2003</u>		<u>FY 2004</u>	
(U)	Common System Concepts					5,021		7,139		4,563	
(U)	Radiation Hardness					2,948		3,447		1,851	
(U)	Alternate instrument technology (e.g. Accelerometer, Gyro, MEMs)					8,937		8,668		5,722	
(U)	Flight Test Options Analysis					0		5,298		6,022	
(U)	Total					16,906		24,552		18,158	
(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 2002</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget FY 2004</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Product Development Organizations</u>											
	Northrop Grumman (Prime) / C/CPAF		Dec 97 /	Continuing	Continuing	35,427	16,846	24,492	18,098	Continuing	TBD
	Others TBD		TBD								
<u>Support and Management Organizations</u>											
	Other Engineering Support	Various	As Req'd	Continuing	Continuing	3,455	60	60	60	Continuing	TBD
	Test and Evaluation Organizations										
(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 2002</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget FY 2004</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Product Development Property</u>											
	None										
<u>Support and Management Property</u>											
	None										
Project 1020						Page 6 of 30 Pages	Exhibit R-3 (PE 0603851F)				

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE				
04 - Advanced Component Development and Prototypes (ACD&P)		February 2003				
BUDGET ACTIVITY		PE NUMBER AND TITLE			PROJECT	
04 - Advanced Component Development and Prototypes (ACD&P)		0603851F ICBM - DEM/VAL			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 2002</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>Complete</u>
<u>Subtotals</u>						<u>Total</u>
Subtotal Product Development		35,427	16,846	24,492	18,098	TBD
Subtotal Support and Management		3,455	60	60	60	TBD
Subtotal Test and Evaluation						
Total Project		38,882	16,906	24,552	18,158	TBD

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)									DATE February 2003		
BUDGET ACTIVITY 04 - Advanced Component Development and Prototypes (ACD&P)					PE NUMBER AND TITLE 0603851F ICBM - DEM/VAL					PROJECT 1021	
COST (\$ in Thousands)	FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost	
1021 ICBM Propulsion Applications	1,550	4,281	24,356	41,399	42,042	42,064	39,777	40,386	Continuing	TBD	
<p>(U) <u>A. Mission Description</u> (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 submarine-launched ballistic missile (SLBM) propulsion systems, and demonstrating application of technology developed by the Science and Technology community to the ICBM strategic systems. This approach maintains critical design development and system engineering skills and capabilities for the future.</p> <p>Budget Activity Justification: This program is in Budget Activity 04 - Advanced Concept Development and Prototypes because the efforts demonstrate technology, component, and subsystem maturity and provide risk reduction.</p> <p>(U) <u>FY 2002 (\$ in Thousands)</u> (U) \$0 Accomplishments/Planned Program (U) \$347 Completed studies and continued assessments of technological developments in support of ICBM propulsion systems (U) \$1,203 Designed and evaluated test plans for static-fire test demonstrations of Air Force Research Laboratory (AFRL) technology in support of ICBM propulsion systems (U) \$1,550 Total</p> <p>(U) <u>FY 2003 (\$ in Thousands)</u> (U) \$0 Accomplishments/Planned Program (U) \$157 Conduct assessments of technology developments in support of ICBM propulsion systems (U) \$2,626 Design and evaluate solid propulsion technologies for application to ICBM subsystems through analysis and test leading to static-fire demonstrations (U) \$395 Define ordnance demo requirements and continue subsystem design and material/component testing (U) \$512 Conduct post-boost propulsion design and evaluation of advanced technologies to support ICBM applications</p>											
Project 1021			Page 8 of 30 Pages				Exhibit R-2A (PE 0603851F)				

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)		DATE February 2003																																					
BUDGET ACTIVITY 04 - Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603851F ICBM - DEM/VAL	PROJECT 1021																																					
<p>(U) <u>A. Mission Description Continued</u></p> <p>(U) <u>FY 2003 (\$ in Thousands) Continued</u></p> <p>(U) \$591 Conduct assessments and demonstration of advanced service life prediction technology in ICBM propulsion subsystems</p> <p>(U) \$4,281 Total</p> <p>(U) <u>FY 2004 (\$ in Thousands)</u></p> <p>(U) \$0 Accomplishments/Planned Program</p> <p>(U) \$19,448 Evaluate and test solid propulsion technologies for ICBM application through process development and stage manufacture leading to static fire testing</p> <p>(U) \$4,396 Assessment and demonstration of ordnance and post-boost components technology developments</p> <p>(U) \$512 Evaluate test protocols in support of hazard classification methods for ICBM solid rocket motors</p> <p>(U) \$24,356 Total</p> <p>(U) <u>B. Project Change Summary</u></p> <p>FY04: Funding increased to support Nuclear Posture Review (NPR) - recommended accelerated program of static fire demonstrations to ensure viability of solid rocket propulsion design and development 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: 15%;"></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>FY 2008</u></th> <th style="width: 10%; text-align: center;"><u>FY 2009</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>Estimate</u></td> <td style="text-align: center;"><u>Estimate</u></td> <td style="text-align: center;"><u>Estimate</u></td> <td style="text-align: center;"><u>Estimate</u></td> <td style="text-align: center;"><u>Estimate</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><td></td> </tr> </tbody> </table> <p>(U) <u>D. Acquisition Strategy</u></p> <p>Studies, analyses, and motor ground test firings will be accomplished. Efforts will be conducted using contracting strategies deemed appropriate.</p> <p>(U) <u>E. Schedule Profile</u></p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 40%;"></td> <td style="width: 20%; text-align: center;"><u>FY 2002</u></td> <td style="width: 20%; text-align: center;"><u>FY 2003</u></td> <td style="width: 20%; text-align: center;"><u>FY 2004</u></td> </tr> </table>				<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>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>		<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>		(U) None												<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</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>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>																													
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>																														
(U) None																																							
	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>																																				
Project 1021	Page 9 of 30 Pages	Exhibit R-2A (PE 0603851F)																																					

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)							DATE February 2003					
BUDGET ACTIVITY				PE NUMBER AND TITLE			PROJECT					
04 - Advanced Component Development and Prototypes (ACD&P)				0603851F ICBM - DEM/VAL			1021					
(U) E. Schedule Profile Continued												
		<u>FY 2002</u>				<u>FY 2003</u>				<u>FY 2004</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			
(U) Solid stage design and evaluation of solid propulsion technology												
(U) --Begin/Complete Annual Studies				*		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) --Begin/Complete Annual Studies						X		X				
(U) Evaluate and test solid propulsion technologies for ICBM application												
(U) --Periodic Status Report/Reviews									X			X
(U) Assessment/demonstration of ordnance and post-boost components tech												
(U) --Periodic Status Report/Reviews									X			X
(U) Evaluate test protocols in support of hazard classification methods												
(U) --Periodic Status Report/Reviews									X			X
* - Completed Event X - Planned Event												

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)								DATE February 2003		
BUDGET ACTIVITY					PE NUMBER AND TITLE			PROJECT		
04 - Advanced Component Development and Prototypes (ACD&P)					0603851F ICBM - DEM/VAL			1021		
(U) A. Project Cost Breakdown (\$ in Thousands)										
					<u>FY 2002</u>		<u>FY 2003</u>			<u>FY 2004</u>
(U)	Contract Engineering Support				347		0			0
(U)	Studies/Assessments of technology developments				0		157			0
(U)	Solid stage demo evaluation of solid propulsion technologies				1,203		2,626			0
(U)	Ordnance demo design and evaluation of technologies				0		395			0
(U)	Post-boost propulsion design and evaluation of technologies				0		512			0
(U)	Studies/Assessments of advanced service life prediction technologies				0		591			0
(U)	Evaluate and test solid propulsion technologies for ICBM application through process development				0		0			19,448
(U)	Assessment/Demonstration of ordnance and post-boost components technology developments				0		0			4,396
(U)	Evaluate test protocols in support of hazard classification methods for ICBM solid rocket motors				0		0			512
(U)	Total				1,550		4,281			24,356
(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 2002</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget FY 2004</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Product Development Organizations</u>										
Northrop Grumman (Prime) / C/CPAF		Dec 97 /	Continuing	Continuing	664	1,540	4,251	23,256	Continuing	TBD
Others TBD		TBD								
AFRL Edwards	PO or MIPR	TBD	Continuing	Continuing	0	0	0	1,000	Continuing	TBD
<u>Support and Management Organizations</u>										
Prog Management	Various	As Req'd	Continuing	Continuing	46	10	30	100	Continuing	TBD
<u>Test and Evaluation Organizations</u>										
None										
Project 1021					Page 11 of 30 Pages			Exhibit R-3 (PE 0603851F)		

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2003		
BUDGET ACTIVITY 04 - Advanced Component Development and Prototypes (ACD&P)				PE NUMBER AND TITLE 0603851F ICBM - DEM/VAL			PROJECT 1021		
(U) <u>Government Furnished Property:</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>Item</u>	<u>Method/Type</u>	<u>Obligation</u>	<u>Date</u>	<u>to FY 2002</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</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 2002</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>Complete</u>	<u>Program</u>
Subtotal Product Development				664	1,540	4,251	24,256	TBD	TBD
Subtotal Support and Management				46	10	30	100	TBD	TBD
Subtotal Test and Evaluation									
Total Project				710	1,550	4,281	24,356	TBD	TBD

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)

DATE
February 2003

BUDGET ACTIVITY
04 - Advanced Component Development and Prototypes
(ACD&P)

PE NUMBER AND TITLE
0603851F ICBM - DEM/VAL

PROJECT
1022

COST (\$ in Thousands)		FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
1022	ICBM Reentry Vehicle Applications	19,841	24,530	17,181	20,423	21,023	19,920	21,213	21,515	Continuing	TBD

(U) A. Mission Description

ICBM Reentry Vehicle (RV) Applications efforts ensure the Minuteman force is equipped 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 Force Development Evaluation (FDE) flights.

Budget Activity Justification:

This program is in Budget Activity 04 - Advanced Concept Development and Prototypes because the efforts demonstrate technology, component, and subsystem maturity and provide risk reduction.

(U) FY 2002 (\$ in Thousands)

(U) \$0	Accomplishments/Planned Program
(U) \$4,855	Continued evaluation of RV material subsystems, materials aging, and material replacements by performing ground and flight tests
(U) \$3,713	Continued design, development, and prototype flight testing of selected fuze assessment/measurement
(U) \$1,488	Continued identification and ground testing of potential replacement options for critical RV components
(U) \$986	Continued evaluation of improved accuracy measurements and methodologies
(U) \$2,978	Continued evaluation of alternate flight test experiment options
(U) \$3,491	Continued evaluation of advanced common RV designs, applications, and technologies
(U) \$2,330	Continued development and assessment of RV Test & Evaluation methodologies and subsystems
(U) \$19,841	Total

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)							DATE February 2003																																	
BUDGET ACTIVITY 04 - Advanced Component Development and Prototypes (ACD&P)				PE NUMBER AND TITLE 0603851F ICBM - DEM/VAL		PROJECT 1022																																		
<p>(U) <u>A. Mission Description Continued</u></p> <p>(U) <u>FY 2003 (\$ in Thousands)</u></p> <p>(U) \$0 Accomplishments/Planned Program</p> <p>(U) \$5,363 Continue evaluation of RV material subsystems, materials aging, and material replacements by performing ground and flight tests</p> <p>(U) \$2,705 Continue design, development, and prototype flight testing of selected fuze assessment/measurement</p> <p>(U) \$1,236 Continue identification and ground testing of potential replacement options for critical RV components</p> <p>(U) \$745 Continue evaluation of improved accuracy measurements and methodologies</p> <p>(U) \$4,694 Continue evaluation of alternate flight test experiment options</p> <p>(U) \$5,167 Continue evaluation of advanced common RV designs, applications, and technologies</p> <p>(U) \$4,620 Continue development and assessment of RV Test & Evaluation methodologies and subsystems</p> <p>(U) \$24,530 Total</p> <p>(U) <u>FY 2004 (\$ in Thousands)</u></p> <p>(U) \$0 Accomplishments/Planned Program</p> <p>(U) \$4,998 Continue evaluation of RV material subsystems, materials aging, and material replacements by performing ground and flight tests</p> <p>(U) \$1,121 Continue design, development, and prototype flight testing of selected fuze assessment/measurement</p> <p>(U) \$1,458 Continue identification and ground testing of potential replacement options for critical RV components</p> <p>(U) \$852 Continue evaluation of improved accuracy measurements and methodologies</p> <p>(U) \$2,795 Continue evaluation of alternate flight test experiment options</p> <p>(U) \$3,513 Continue evaluation of advanced common RV designs, applications, and technologies</p> <p>(U) \$2,444 Continue development and assessment of RV Test & Evaluation methodologies and subsystems</p> <p>(U) \$17,181 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 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>FY 2008</u></th> <th style="width:10%;"><u>FY 2009</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><u>Actual</u></td> <td><u>Estimate</u></td> <td><u>Estimate</u></td> <td><u>Estimate</u></td> <td><u>Estimate</u></td> <td><u>Estimate</u></td> <td><u>Estimate</u></td> <td><u>Estimate</u></td> <td><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> <td></td> </tr> </tbody> </table>									<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>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>		<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>		(U) None										
	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>																														
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>																															
(U) None																																								
Project 1022			Page 14 of 30 Pages			Exhibit R-2A (PE 0603851F)																																		

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)										DATE February 2003			
BUDGET ACTIVITY					PE NUMBER AND TITLE					PROJECT			
04 - Advanced Component Development and Prototypes (ACD&P)					0603851F ICBM - DEM/VAL					1022			
(U) <u>D. Acquisition Strategy</u>													
Studies, analyses, limited engineering, and pre-prototype hardware development will be accomplished. Efforts will be conducted using contracting strategies deemed most appropriate.													
(U) <u>E. Schedule Profile</u>													
		<u>FY 2002</u>				<u>FY 2003</u>				<u>FY 2004</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 2003				
BUDGET ACTIVITY			PE NUMBER AND TITLE				PROJECT			
04 - Advanced Component Development and Prototypes (ACD&P)			0603851F ICBM - DEM/VAL				1022			
(U) A. Project Cost Breakdown (\$ in Thousands)										
						<u>FY 2002</u>		<u>FY 2003</u>		<u>FY 2004</u>
(U)	Evaluate Materials Subsystems and Replacements					4,855		5,363		4,998
(U)	Fuze Assessment					3,713		2,705		1,121
(U)	Identify/Ground Test Critical Components					1,488		1,236		1,458
(U)	Accuracy Assessment Measures/Methodologies					986		745		852
(U)	Flight Test Experiments Options					2,978		4,694		2,795
(U)	Evaluate Advanced Common RV					3,491		5,167		3,513
(U)	Develop & Assess RV T&E Methods					2,330		4,620		2,444
(U)	Total					19,841		24,530		17,181
(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 2002</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget FY 2004</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Product Development Organizations</u>										
Northrop Grumman (Prime) / C/CPAF		Dec 97 /	Continuing	Continuing	39,182	18,331	22,970	15,621	Continuing	TBD
Others TBD		TBD								
<u>Support and Management Organizations</u>										
Other Engineering & Management Support	Various	Ongoing	Continuing	Continuing	1,446	60	60	60	Continuing	TBD
<u>Test and Evaluation Organizations</u>										
Wright Lab	MIPR	Annual	Continuing	Continuing	1,590	450	500	500	Continuing	TBD
AEDC	PO	Annual	Continuing	Continuing	1,902	750	750	750	Continuing	TBD
Vandenberg AFB	PO	As Req'd	Continuing	Continuing	146	250	250	250	Continuing	TBD

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)					DATE					
BUDGET ACTIVITY					PROJECT					
04 - Advanced Component Development and Prototypes (ACD&P)					0603851F ICBM - DEM/VAL			1022		
(U) <u>Government Furnished Property:</u> Contract Method/Type Award or or Funding Obligation Delivery Date Date Total Prior to FY 2002 Budget FY 2002 Budget FY 2003 Budget FY 2004 Budget to Complete Total Program Item Description <u>Product Development Property</u> None <u>Support and Management Property</u> None <u>Test and Evaluation Property</u> None Subtotals Subtotal Product Development Subtotal Support and Management Subtotal Test and Evaluation Total Project					Total Prior to FY 2002 Budget FY 2002 Budget FY 2003 Budget FY 2004 Budget to Complete Total Program					
					39,182	18,331	22,970	15,621	TBD	TBD
					1,446	60	60	60	TBD	TBD
					3,638	1,450	1,500	1,500	TBD	TBD
					44,266	19,841	24,530	17,181	TBD	TBD

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)

DATE
February 2003

BUDGET ACTIVITY
04 - Advanced Component Development and Prototypes
(ACD&P)

PE NUMBER AND TITLE
0603851F ICBM - DEM/VAL

PROJECT
1023

COST (\$ in Thousands)		FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
1023	Rocket System Launch Program	3,521	31	31	33	33	34	35	35	Continuing	TBD

(U) A. Mission Description

This task supports studies/analyses on hardware for cost effective use of excess missile assets.

Budget Activity Justification:

This program is in Budget Activity 04 - Advanced Concept Development and Prototypes because the efforts demonstrate technology, component, and subsystem maturity and provide risk reduction.

(U) FY 2002 (\$ in Thousands)

- (U) \$0** Accomplishments/Planned Program
- (U) \$31** Continued on-going study/analysis for the adoption of low cost front-end systems for use on deactivated missile assets.
- (U) \$3,490** Provided operational support of Northern Edge exercise and demonstrated common strategic missile technology.
- (U) \$3,521** Total

(U) FY 2003 (\$ in Thousands)

- (U) \$0** Accomplishments/Planned Program
- (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

(U) FY 2004 (\$ in Thousands)

- (U) \$0** Accomplishments/Planned Program
- (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

(U) B. Project Change Summary

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)							DATE February 2003				
BUDGET ACTIVITY 04 - Advanced Component Development and Prototypes (ACD&P)				PE NUMBER AND TITLE 0603851F ICBM - DEM/VAL				PROJECT 1023			
(U) C. Other Program Funding Summary (\$ in Thousands)											
	<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>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>	
	Actual	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Complete		
(U) Other APPN											
(U) None											
(U) D. Acquisition Strategy											
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.											
(U) E. Schedule Profile											
				<u>FY 2002</u>			<u>FY 2003</u>		<u>FY 2004</u>		
				1	2	3	4	1	2	3	4
(U) Start/Complete Annual Studies/Analysis				*			*	*	X	X	X
(U) Quick Reaction Launch Capability Demo											
(U) -- Northern Edge launch						*					
* - Completed Event X - Planned Event											
Project 1023			Page 19 of 30 Pages				Exhibit R-2A (PE 0603851F)				

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2003				
BUDGET ACTIVITY 04 - Advanced Component Development and Prototypes (ACD&P)					PE NUMBER AND TITLE 0603851F ICBM - DEM/VAL			PROJECT 1023			
(U) <u>A. Project Cost Breakdown (\$ in Thousands)</u>											
						FY 2002		FY 2003		FY 2004	
(U)	Studies/Analyses					31		31		31	
(U)	Quick Reaction Launch Capability Demonstrations										
(U)	-- Northern Edge Exercise Quick Reaction Launch					3,490		0		0	
(U)	Total					3,521		31		31	
(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 2002</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget FY 2004</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Product Development Organizations</u>											
	Various	Various	As Req'd	N/A	7,338	5,363	1,975	0		0	7,338
	Thiokol	FFP	Apr 02	600	600	0	600	0	0		600
<u>Support and Management Organizations</u>											
	Northrop Grumman	SS/T&M	As Req'd	N/A	N/A	8,103	300	0	0	Continuing	TBD
	Various	Various	As Req'd	Continuing	Continuing	842	646	31	31	Continuing	TBD
<u>Test and Evaluation Organizations</u>											
(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 2002</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget FY 2004</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Product Development Property</u>											
	None										
<u>Support and Management Property</u>											
	None										

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE				
		February 2003				
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT				
04 - Advanced Component Development and Prototypes (ACD&P)	0603851F ICBM - DEM/VAL	1023				
(U) Government Furnished Property Continued:						
<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>to FY 2002</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>Complete</u>	<u>Program</u>
<u>Subtotals</u>						
Subtotal Product Development	5,363	2,575	0	0	0	7,938
Subtotal Support and Management	8,945	946	31	31	TBD	TBD
Subtotal Test and Evaluation						
Total Project	14,308	3,521	31	31	TBD	TBD

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)									DATE February 2003		
BUDGET ACTIVITY 04 - Advanced Component Development and Prototypes (ACD&P)					PE NUMBER AND TITLE 0603851F ICBM - DEM/VAL					PROJECT 1024	
COST (\$ in Thousands)	FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost	
1024 ICBM Command & Control (C2) Applications	409	1,412	433	444	458	465	471	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 President and Secretary of Defense. 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 more 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>Budget Activity Justification: This program is in Budget Activity 04 - Advanced Concept Development and Prototypes because the efforts demonstrate technology, component, and subsystem maturity and provide risk reduction.</p> <p>(U) <u>FY 2002 (\$ in Thousands)</u> (U) \$0 Accomplishments/Planned Program (U) \$186 Continued to develop and refine alternatives and concepts for a C2 system architecture supporting strategic missile applications (U) \$223 Demonstrated, tested and evaluated alternative network architectures, applications, and technologies (U) \$409 Total</p> <p>(U) <u>FY 2003 (\$ in Thousands)</u> (U) \$0 Accomplishments/Planned Program (U) \$825 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) \$587 Continue demonstrations, testing and evaluation of alternative network architectures, applications, and technologies. Ensure compatibility with transformational communications studies and integrate activities.</p>											
Project 1024			Page 22 of 30 Pages				Exhibit R-2A (PE 0603851F)				

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)		DATE February 2003																																																																																																																									
BUDGET ACTIVITY 04 - Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603851F ICBM - DEM/VAL	PROJECT 1024																																																																																																																									
<p>(U) <u>A. Mission Description Continued</u></p> <p>(U) <u>FY 2003 (\$ in Thousands) Continued</u></p> <p>(U) \$1,412 Total</p> <p>(U) <u>FY 2004 (\$ in Thousands)</u></p> <p>(U) \$0 Accomplishments/Planned Program</p> <p>(U) \$433 Develop concepts for transformation of ICBM command, control, communications, computers, intelligence, surveillance, and reconnaissance (C4ISR) architecture for future ICBM missions, including analysis of requirements for modeling, simulation, demonstrations, and flight tests; develop plans for preserving unique strategic C2 skills and capabilities.</p> <p>(U) \$433 Total</p> <p>(U) <u>B. Project Change Summary</u></p> <p>None</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 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>FY 2008</u></th> <th style="text-align: center;"><u>FY 2009</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>Estimate</u></th> <th style="text-align: center;"><u>Estimate</u></th> <th style="text-align: center;"><u>Estimate</u></th> <th style="text-align: center;"><u>Estimate</u></th> <th style="text-align: center;"><u>Estimate</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) None</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>(U) <u>D. Acquisition Strategy</u></p> <p>Studies and analyses, and limited engineering and pre-prototype hardware development 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></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> <th colspan="3" style="text-align: center;"><u>FY 2004</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) Future Concepts Study for Command & Control (Ongoing)</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 Progress Reports/Reviews</td> <td></td><td style="text-align: center;">*</td><td></td><td></td><td style="text-align: center;">*</td><td></td><td style="text-align: center;">X</td><td></td><td style="text-align: center;">X</td><td></td><td style="text-align: center;">X</td><td></td> </tr> <tr> <td>(U) Begin demonstrations, test, and evaluations of alternate networks</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 Progress Reports/Reviews</td> <td></td><td style="text-align: center;">*</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 style="text-align: center;">X</td> </tr> <tr> <td>* - Completed Event X - Planned Event</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>				<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>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>		<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>		(U) None												<u>FY 2002</u>			<u>FY 2003</u>			<u>FY 2004</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		*			*		X		X		X		(U) Begin demonstrations, test, and evaluations of alternate networks													(U) --Periodic Progress Reports/Reviews		*			*				X			X	* - Completed Event X - Planned Event												
	<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>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>																																																																																																																	
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Project 1024	Page 23 of 30 Pages	Exhibit R-2A (PE 0603851F)																																																																																																																									

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2003				
BUDGET ACTIVITY					PE NUMBER AND TITLE			PROJECT			
04 - Advanced Component Development and Prototypes (ACD&P)					0603851F ICBM - DEM/VAL			1024			
(U) A. Project Cost Breakdown (\$ in Thousands)											
						<u>FY 2002</u>		<u>FY 2003</u>		<u>FY 2004</u>	
(U)	System Architecture Study					186		825		0	
(U)	Demonstration of Alternate Network					223		587		0	
(U)	ICBM C4ISR Architecture Transformation					0		0		433	
(U)	Total					409		1,412		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 2002</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget FY 2004</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Product Development Organizations</u>										
	Northrop Grumman (Prime) / C/CPAF		Dec 97 /	Continuing	Continuing	1,958	404	1,397	428	Continuing	TBD
	Others	TBD	TBD								
	<u>Support and Management Organizations</u>										
	Various	Various	As Req'd	N/A	N/A	22	5	15	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 2002</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget FY 2004</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Product Development Property</u>										
	None										
	<u>Support and Management Property</u>										
	None										
Project 1024					Page 24 of 30 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 - Advanced Component Development and Prototypes (ACD&P)		0603851F ICBM - DEM/VAL			February 2003 1024	
(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 2002</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>Complete</u>
<u>Subtotals</u>						<u>Total</u>
Subtotal Product Development		1,958	404	1,397	428	TBD
Subtotal Support and Management		22	5	15	5	TBD
Subtotal Test and Evaluation						
Total Project		1,980	409	1,412	433	TBD
Project 1024						
Page 25 of 30 Pages						
Exhibit R-3 (PE 0603851F)						

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)

DATE
February 2003

BUDGET ACTIVITY 04 - Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603851F ICBM - DEM/VAL	PROJECT 4209
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COST (\$ in Thousands)	FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
4209 Long Range Planning (LRP)	2,182	7,281	7,473	9,270	2,486	2,415	2,414	2,456	Continuing	TBD

Note: In FY 2004, Project 4209 Long Range Planning includes new start efforts to begin an Analysis of Alternatives for a follow on Land-Based Strategic Nuclear Deterrent (LBSND).

(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.

Budget Activity Justification:

This program is in Budget Activity 04 - Advanced Concept Development and Prototypes because the efforts demonstrate technology, component, and subsystem maturity and provide risk reduction.

(U) FY 2002 (\$ in Thousands)

- (U) \$0 Accomplished/Planned Program
- (U) \$435 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) \$985 Continued to perform feasibility and life extension studies
- (U) \$762 Continued to perform technology insertion studies in support of changing ICBM environments
- (U) \$2,182 Total

(U) FY 2003 (\$ in Thousands)

- (U) \$0 Accomplished/Planned Program
- (U) \$469 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) \$3,012 Continue to perform feasibility and life extension studies

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)							DATE February 2003																																									
BUDGET ACTIVITY 04 - Advanced Component Development and Prototypes (ACD&P)				PE NUMBER AND TITLE 0603851F ICBM - DEM/VAL		PROJECT 4209																																										
<p>(U) <u>A. Mission Description Continued</u></p> <p>(U) <u>FY 2003 (\$ in Thousands) Continued</u></p> <p>(U) \$789 Continue to perform technology insertion studies in support of changing ICBM environments</p> <p>(U) \$3,011 Begin development of Threats and Scenarios database with Modeling and Simulation (M&S) capability</p> <p>(U) \$7,281 Total</p> <p>(U) <u>FY 2004 (\$ in Thousands)</u></p> <p>(U) \$0 Accomplishments/Planned Program</p> <p>(U) \$494 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</p> <p>(U) \$1,249 Continue to perform feasibility and life extension studies</p> <p>(U) \$825 Continue to perform technology insertion studies in support of changing ICBM environments</p> <p>(U) \$4,905 Begin Analysis of Alternatives (AoA) for follow on Land-Based Strategic Nuclear Deterrent (LBSND)</p> <p>(U) \$7,473 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 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>FY 2008</u></th> <th style="width:10%;"><u>FY 2009</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>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><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:50%;"></th> <th style="width:25%;"><u>FY 2002</u></th> <th style="width:25%;"><u>FY 2003</u></th> <th style="width:25%;"><u>FY 2004</u></th> </tr> </thead> <tbody> <tr> <td></td> <td></td><td></td><td></td> </tr> </tbody> </table>									<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>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>		<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>		(U) None												<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</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>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>																																						
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(U) None																																																
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Project 4209		Page 27 of 30 Pages		Exhibit R-2A (PE 0603851F)																																												

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)							DATE February 2003					
BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT				
04 - Advanced Component Development and Prototypes (ACD&P)				0603851F ICBM - DEM/VAL				4209				
(U) E. Schedule Profile Continued												
		<u>FY 2002</u>				<u>FY 2003</u>				<u>FY 2004</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 w/Modeling & Simulation capability development								X				
(U) - Start LBSND Analysis of Alternatives										X		
* - Completed Event X - Planned Event												
Project 4209				Page 28 of 30 Pages				Exhibit R-2A (PE 0603851F)				

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE
February 2003

BUDGET ACTIVITY
04 - Advanced Component Development and Prototypes
(ACD&P)

PE NUMBER AND TITLE
0603851F ICBM - DEM/VAL

PROJECT
4209

(U) **A. Project Cost Breakdown (\$ in Thousands)**

	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>
(U) Long Range Planning Tasks	435	469	494
(U) Feasibility Studies	985	3,012	1,249
(U) Technology Insertion Studies	762	789	825
(U) Threats & Scenarios database with Modeling & Simulation capability development	0	3,011	0
(U) LBSND Analysis of Alternatives	0	0	4,905
(U) Total	2,182	7,281	7,473

(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 2002</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget FY 2004</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Product Development Organizations</u>										
Northrop Grumman (Prime)	C/CPAF	Dec 97	N/A	N/A	4,409	409	469	481	Continuing	TBD
TBD - Annual Studies/Analysis	TBD	Annually	N/A	N/A	0	1,628	3,656	1,942	Continuing	TBD
TBD - Threat/Scenario/DBs	TBD	Mar 03	N/A	3,011	0	0	3,011	0	0	3,011
TBD - LBSND AoA	TBD	Jan 04	N/A	11,905	0	0	0	4,905	7,000	11,905
<u>Support and Management Organizations</u>										
Various	Various	Ongoing	N/A	N/A	2,347	145	145	145	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 2002</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget FY 2004</u>	<u>Budget to Complete</u>	<u>Total Program</u>

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2003	
BUDGET ACTIVITY 04 - Advanced Component Development and Prototypes (ACD&P)				PE NUMBER AND TITLE 0603851F ICBM - DEM/VAL			PROJECT 4209	
(U) <u>Government Furnished Property Continued:</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>Description</u>	<u>Vehicle</u>	<u>Date</u>	<u>Date</u>	<u>to FY 2002</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</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 2002</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>Complete</u>
Subtotal Product Development				4,409	2,037	7,136	7,328	TBD
Subtotal Support and Management				2,347	145	145	145	TBD
Subtotal Test and Evaluation								
Total Project				6,756	2,182	7,281	7,473	TBD

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									DATE February 2003	
BUDGET ACTIVITY 04 - Advanced Component Development and Prototypes (ACD&P)					PE NUMBER AND TITLE 0603854F Wideband MILSATCOM (Space)					
COST (\$ in Thousands)	FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	96,398	13,801	36,686	73,691	15,994	9,309	5,704	6,347	0	351,062
4811 Wideband Gapfiller	79,855	1,965	0	53,341	7,702	2,296	0	0	0	228,744
4870 Command & Control System Consolidated (CCSC)	16,543	11,836	36,686	20,350	8,292	7,013	5,704	6,347	0	122,318
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

(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.

The Wideband Gapfiller Satellites (WGS) will augment the DoD's Defense Satellite Communications 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 NLT Oct 04, and satellites 2 and 3 are scheduled for NLT Oct 05. Program Decision Memorandum I directed the addition of two additional WGS's that will complement the transformational communications architecture. Renegotiation will be required as procurement of satellites 4-5 in FY07 and FY08 is not covered by the options negotiated in the current WGS contract. The first option will be exercised IAW the advance procurement plan for WGS #4 in FY06.

The MILSATCOM Command and Control System-Consolidated (CCS-C) system is being acquired to provide integrated launch and on-orbit command and control (C-2) functionality for MILSATCOM satellites as the current capability provided by the Air Force Satellite Control Network (PE0305110F) phases out according to plan. CCS-C will use modified commercial off the shelf hardware/software to control all emerging and legacy MILSATCOM systems to include MILSTAR, DSCS, WGS, AEHF, Advanced Polar, satellites at reduced operating and maintenance costs.

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DATE
February 2003

BUDGET ACTIVITY
04 - Advanced Component Development and Prototypes
(ACD&P)

PE NUMBER AND TITLE
0603854F Wideband MILSATCOM (Space)

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

(U) Funding is in Budget Activity 4, Advanced Component Development and Prototypes to support:
 WGS: making maximum use of commercial technology and practices by modifying commercial satellites to better support unique military requirements
 CCS-C: development phase

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

	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>Total Cost</u>
(U) Previous President's Budget	99,033	20,009	43,017	551,222
(U) Appropriated Value	100,670	14,009		
(U) Adjustments to Appropriated Value				
a. Congressional/General Reductions	-2,106	-148		
b. Small Business Innovative Research	-3,000			
c. Omnibus or Other Above Threshold Reprogram		-60		
d. Below Threshold Reprogram	834			
e. Rescissions				
(U) Adjustments to Budget Years Since FY 2003 PBR		0	-6,331	
(U) Current Budget Submit/FY 2004 PBR	96,398	13,801	36,686	351,062

(U) **Significant Program Changes:**

(U) FY04: Joint Terminal Engineering Office (JTEO) support effort was transferred from Project 644811 to PE 0303601F, MILSATCOM Terminals. Project 644870 changes reflect the costs of the contract definitized in FY02 and planned contract modifications for future system.

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)

DATE
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BUDGET ACTIVITY
04 - Advanced Component Development and Prototypes
(ACD&P)

PE NUMBER AND TITLE
0603854F Wideband MILSATCOM (Space)
PROJECT
4811

COST (\$ in Thousands)	FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
4811 Wideband Gapfiller	79,855	1,965	0	53,341	7,702	2,296	0	0	0	228,744

(U) A. Mission Description

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 first WGS launch is scheduled for NLT Oct 04, and satellites 2 and 3 are scheduled for NLT Oct 05. 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.

Funding was added in FY2005 and beyond for non-recurring engineering on satellites 4 and 5 to support increased bandwidth requirements for the Airborne Intelligence, Surveillance and Reconnaissance mission. Launches for satellites 4-5 are scheduled for FY09-10.

Funding in Budget Activity 4, Demonstration and Validation to support:

Funds used for non-recurring engineering that maximizes commercial technology and practices to modify commercial satellites to better support military unique requirements.

(U) FY 2002 (\$ in Thousands)

- (U) \$0** Accomplishments/Planned Program
- (U) \$74,087** Completed EMD, including the Non-recurring engineering for all three satellites. Completed Critical Design Review.
- (U) \$3,605** Continued JTEO Support
- (U) \$2,163** Continued Program Support
- (U) \$79,855** Total

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)

DATE
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BUDGET ACTIVITY
04 - Advanced Component Development and Prototypes
(ACD&P)

PE NUMBER AND TITLE
0603854F Wideband MILSATCOM (Space)

PROJECT
4811

(U) **A. Mission Description Continued**

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

(U) \$0 Accomplishments/Planned Program
(U) \$1,965 Continue JTEO Support
(U) \$1,965 Total

(U) **FY 2004 (\$ in Thousands)**

(U) \$0 Accomplishments/Planned Program
(U) \$0 No activity
(U) \$0 Total

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

Beginning in FY04, the Joint Terminal Engineering Office support effort was transferred from Project 644811 to PE 0303601F, MILSATCOM Terminals. Funding was added in FY2005 and beyond for non-recurring engineering on satellites 4 and 5 to support increased bandwidth requirements for the Airborne Intelligence, Surveillance and Reconnaissance mission.

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

	<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>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) MPAF, PE 0303600F, WGS, Line P-16, Line P-17	361,272	188,232	34,588	21,505	60,420	267,688	170,456	43,694	64,800	1,212,655
(U) OPAF, PE 0603854F, WGS PIPs	0	15,933	11,864	0	0	0			0	27,797
(U) OPAF, PE 0303600F, CCS-C	0	5,543	8,109	2,135	289	0			0	16,076

(U) **D. Acquisition Strategy**

The WGS program will make maximum use of commercial practices and technology in its FAR Part 12, FFP acquisition. The WGS received MS II/III approval on 6 Nov 00 and awarded a FFP contract on 2 Jan 01. All five satellites will be purchased with Procurement funds, and the Non-Recurring Engineering (NRE) is funded with RDT&E.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)							DATE February 2003					
BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT				
04 - Advanced Component Development and Prototypes (ACD&P)				0603854F Wideband MILSATCOM (Space)				4811				
(U) E. Schedule Profile												
		<u>FY 2002</u>				<u>FY 2003</u>				<u>FY 2004</u>		
	1	2	3	4	1	2	3	4	1	2	3	4
(U)	EMD/Production Contract Award											
(U)	EMD Completion											
(U)	Satellite Production Options											
(U)	Satellite 1 Launch (Oct 04)											
x = planned event; * = completed event												

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2003				
BUDGET ACTIVITY					PE NUMBER AND TITLE			PROJECT			
04 - Advanced Component Development and Prototypes (ACD&P)					0603854F Wideband MILSATCOM (Space)			4811			
(U) A. Project Cost Breakdown (\$ in Thousands)											
						<u>FY 2002</u>		<u>FY 2003</u>		<u>FY 2004</u>	
(U)	EMD					74,087		0		0	
(U)	JTEO Support					3,605		1,965		0	
(U)	Program Support					2,163		0		0	
(U)	Total					79,855		1,965		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 2002</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget FY 2004</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Product Development Organizations</u>											
	WGS Satellite EMD	FFP	Jan 01	203,008	203,008	68,477	74,531	0	0	59,300	202,308
<u>Support and Management Organizations</u>											
	JTEO	PR	Continuing	8,583	8,583	3,457	3,161	1,965	0	0	8,583
	Pre-EMD	Form 277	Dec 99	5,579	5,579	5,579	0	0	0	0	5,579
	International Studies	SS/CFFF/AF	Various				0	0	0	0	0
	Program Support	Various	Various	12,274	12,274	6,072	2,163	0	0	4,039	12,274
<u>Test and Evaluation Organizations</u>											
	AFOTEC, DT&E	TBD	TBD	TBD	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 2002</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget FY 2004</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Product Development Property</u>										
	TBD										

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE February 2003				
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT				
04 - Advanced Component Development and Prototypes (ACD&P)	0603854F Wideband MILSATCOM (Space)	4811				
(U) <u>Government Furnished Property Continued:</u>						
<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 2002</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>Complete</u>	<u>Program</u>
Subtotal Product Development	68,477	74,531	0	0	59,300	202,308
Subtotal Support and Management	15,108	5,324	1,965	0	4,039	26,436
Subtotal Test and Evaluation						
Total Project	83,585	79,855	1,965	0	63,339	228,744

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)									DATE February 2003			
BUDGET ACTIVITY 04 - Advanced Component Development and Prototypes (ACD&P)					PE NUMBER AND TITLE 0603854F Wideband MILSATCOM (Space)					PROJECT 4870		
COST (\$ in Thousands)			FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
4870	Command & Control System Consolidated (CCSC)		16,543	11,836	36,686	20,350	8,292	7,013	5,704	6,347	0	122,318
<p>(U) <u>A. Mission Description</u> 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 including MILSTAR, DSCS, WGS, AEHF, and DoD satellites identified in the Transformational Communications Architecture (TCA), at reduced operating and maintenance costs.</p> <p>Funding is in Budget Activity 4, Demonstration and Validation to support software development and activation of the CCS-C installation and test facility.</p> <p>(U) <u>FY 2002 (\$ in Thousands)</u> (U) \$0 Accomplishments/Planned Program (U) \$588 Completed Concept Demonstration Phase (U) \$12,876 Began development of command and control functionality (i.e., software development). CCS-C installation and test facility activated in Colorado Springs, CO. (U) \$3,079 Continued Program Support (U) \$16,543 Total</p> <p>(U) <u>FY 2003 (\$ in Thousands)</u> (U) \$0 Accomplishments/Planned Program (U) \$8,920 Continue development of command and control functionality for Defense Satellite Communications System, MILSTAR, Wideband Gapfiller satellites, and Advanced EHF satellites (U) \$2,916 Continue Program Support (U) \$11,836 Total</p>												
Project 4870			Page 8 of 11 Pages					Exhibit R-2A (PE 0603854F)				

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)							DATE February 2003			
BUDGET ACTIVITY 04 - Advanced Component Development and Prototypes (ACD&P)				PE NUMBER AND TITLE 0603854F Wideband MILSATCOM (Space)			PROJECT 4870			
(U) <u>A. Mission Description Continued</u>										
(U) <u>FY 2004 (\$ in Thousands)</u>										
(U) \$0 Accomplishments/Planned Program										
(U) \$32,954 Continue development of command and control functionality for Wideband Gapfiller Satellites and Advanced EHF satellites. Complete Command and control functionality for Defense Satellite Communications System, MILSTAR										
(U) \$3,732 Continue Program Office and other related support activities										
(U) \$36,686 Total										
(U) <u>B. Project Change Summary</u>										
(U) None.										
(U) <u>C. Other Program Funding Summary (\$ in Thousands)</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>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E										
(U) Other APPN										
(U) OPAF, PE 030600F, CCS-C BA-11 Line-67	0	5,543	8,109	2,135	289	0			0	16,458
(U) <u>D. Acquisition Strategy</u>										
Competitive contracts with cost plus award fee options, were awarded in Feb 01 to two teams to demonstrate capabilities - the concept demonstration phase. A downselect to a single team was awarded in Mar 02 to develop the system for the development phase.										
(U) <u>E. Schedule Profile</u>										
			<u>FY 2002</u>				<u>FY 2003</u>			<u>FY 2004</u>
			1	2	3	4	1	2	3	4
(U) Concept Demonstration Contract Award										
(U) Completion of Concept Demonstration				*						
(U) Development Contract Downselect				*						
(U) Critical Design Review						*				
(U) Transition MILSATCOM legacy systems to CCS-C										X
Project 4870										

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)							DATE February 2003					
BUDGET ACTIVITY 04 - Advanced Component Development and Prototypes (ACD&P)				PE NUMBER AND TITLE 0603854F Wideband MILSATCOM (Space)				PROJECT 4870				
(U) <u>E. Schedule Profile Continued</u>												
		<u>FY 2002</u>				<u>FY 2003</u>				<u>FY 2004</u>		
	1	2	3	4	1	2	3	4	1	2	3	4
* = Completed Event												
X = Planned Event												
Project 4870				Page 10 of 11 Pages				Exhibit R-2A (PE 0603854F)				

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2003			
BUDGET ACTIVITY					PE NUMBER AND TITLE			PROJECT		
04 - Advanced Component Development and Prototypes (ACD&P)					0603854F Wideband MILSATCOM (Space)			4870		
(U) A. Project Cost Breakdown (\$ in Thousands)										
						<u>FY 2002</u>		<u>FY 2003</u>		<u>FY 2004</u>
(U)	Concept Demonstration Phase					588		0		
(U)	Development Phase					12,876		8,920		32,954
(U)	Program Support					3,079		2,916		3,732
(U)	Total					16,543		11,836		36,686
(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 2002</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget FY 2004</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Product Development Organizations</u>										
Demonstration Contractors	FFP	Feb 01	6,835	6,835	6,247	588	0	0	0	6,835
Development Contractor	CPAF	Mar 02	91,107	91,107	0	12,876	8,920	32,954	36,357	91,107
<u>Support and Management Organizations</u>										
Various		Various	16,238	16,238	3,300	3,079	2,916	3,732	11,349	24,376
<u>Test and Evaluation Organizations</u>										
<u>Subtotals</u>					<u>Total Prior to FY 2002</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget FY 2004</u>	<u>Budget to Complete</u>	<u>Total Program</u>
Subtotal Product Development					6,247	13,464	8,920	32,954	36,357	97,942
Subtotal Support and Management					3,300	3,079	2,916	3,732	11,349	24,376
Subtotal Test and Evaluation										
Total Project					9,547	16,543	11,836	36,686	47,706	122,318

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE
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BUDGET ACTIVITY 04 - Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603856F Air Force/National Program Cooperation (AFNPC)	PROJECT 4782
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COST (\$ in Thousands)	FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
4782 Air Force/National Program Cooperation (AFNPC)	2,252	2,491	0	0	0	0	0	0	0	9,555
Quantity of RDT&E Articles	0	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 Intelligence Center/Back-up Technical Intelligence Center (CTIC/BTIC) which will be electronically connected 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.

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

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 2003																						
BUDGET ACTIVITY 04 - Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603856F Air Force/National Program Cooperation (AFNPC)	PROJECT 4782																						
<p>(U) <u>A. Mission Description Continued</u> 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 2002 (\$ in Thousands)</u></p> <table style="width: 100%; border: none;"> <tr> <td style="width: 10%;">(U) \$0</td> <td>Accomplishment/Planned Program</td> </tr> <tr> <td>(U) \$838</td> <td>Continued technical support to the AF/NRO Integration Planning Group (ANIPG)</td> </tr> <tr> <td>(U) \$1,414</td> <td>Continued to develop processing capabilities to exploit SBIRS sensor data for technical intelligence</td> </tr> <tr> <td>(U) \$2,252</td> <td>Total</td> </tr> </table> <p>(U) <u>FY 2003 (\$ in Thousands)</u></p> <table style="width: 100%; border: none;"> <tr> <td style="width: 10%;">(U) \$0</td> <td>Accomplishment/Planned Program</td> </tr> <tr> <td>(U) \$837</td> <td>Continues technical support to the AF/NRO Integration Planning Group (ANIPG)</td> </tr> <tr> <td>(U) \$1,654</td> <td>Funds the Collaborative Technical Intelligence Center and the Back-up Technical Intelligence Center (CTIC and BTIC). Also funds 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) \$2,491</td> <td>Total</td> </tr> </table> <p>(U) <u>FY 2004 (\$ in Thousands)</u></p> <table style="width: 100%; border: none;"> <tr> <td style="width: 10%;">(U) \$0</td> <td>Accomplishment/Planned Program</td> </tr> <tr> <td>(U) \$0</td> <td>No Activity.</td> </tr> <tr> <td>(U) \$0</td> <td>Total</td> </tr> </table> <p>(U) <u>B. Budget Activity Justification</u> (U) This PE is in Budget Activity 4, Advanced Component Development and Prototypes (ACDP), because these projects involve testing and demonstrating new cooperative efforts.</p>			(U) \$0	Accomplishment/Planned Program	(U) \$838	Continued technical support to the AF/NRO Integration Planning Group (ANIPG)	(U) \$1,414	Continued to develop processing capabilities to exploit SBIRS sensor data for technical intelligence	(U) \$2,252	Total	(U) \$0	Accomplishment/Planned Program	(U) \$837	Continues technical support to the AF/NRO Integration Planning Group (ANIPG)	(U) \$1,654	Funds the Collaborative Technical Intelligence Center and the Back-up Technical Intelligence Center (CTIC and BTIC). Also funds 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) \$2,491	Total	(U) \$0	Accomplishment/Planned Program	(U) \$0	No Activity.	(U) \$0	Total
(U) \$0	Accomplishment/Planned Program																							
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(U) \$2,491	Total																							
(U) \$0	Accomplishment/Planned Program																							
(U) \$0	No Activity.																							
(U) \$0	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)

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BUDGET ACTIVITY 04 - Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603856F Air Force/National Program Cooperation (AFNPC)	PROJECT 4782
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(U) **C. Program Change Summary (\$ in Thousands)**

	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>Total Cost</u>
(U) Previous President's Budget	4,433	8,829	3,324	15,904
(U) Appropriated Value	2,433	2,529		9,604
(U) Adjustments to Appropriated Value				
a. Congressional/General Reductions	-35	-27		
b. Small Business Innovative Research	-146			
c. Omnibus or Other Above Threshold Reprogram		-11		
d. Below Threshold Reprogram				
e. Rescissions				
(U) Adjustments to Budget Years Since FY 2003 PBR	0	0	-3,324	-49
(U) Current Budget Submit/FY 2004 PBR	2,252	2,491	0	9,555

(U) **Significant Program Changes:**
 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.
 FY03: N/A.
 FY04: SBIRS Technical Intelligence (TI) project transferred to SBIRS EMD PE 0604441F. ANIPG project funds reprogrammed to other AF priorities due to consolidation of National Security Space activities under USecAF.

(U) **D. Other Program Funding Summary (\$ in Thousands)**

	<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>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) 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 with Lockheed Martin.

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)							DATE February 2003					
BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT				
04 - Advanced Component Development and Prototypes (ACD&P)				0603856F Air Force/National Program Cooperation (AFNPC)				4782				
(U) F. Schedule Profile												
		<u>FY 2002</u>				<u>FY 2003</u>				<u>FY 2004</u>		
	1	2	3	4	1	2	3	4	1	2	3	4
(U) ANIPG Efforts:												
(U) Program support and studies in support of AF and NRO Collaborative	*							X				
(U) SBIRS TI Capability Development:												
(U) Global Connectivity Service Complete												X
(U) NSTS/DICES (see note) Complete												X
(U) Remote Technical Intelligence Console IOC												X
(U) CTIC Design & Development (see note) Engineering Complete											X	
* = Completed Event												
X = Planned Event												
Note: SBIRS TI acronyms are as follows:												
NSTS/DICES - National Security Agency (NSA) Secure Telephone System / Digital Integrated Communications Electronic System												
CTIC/BTIC - Collaborative Technical Intelligence Center / Backup Technical Intelligence Center												
Schedule changes from FY03 President's Budget request were driven as a result of the SBIRS program restructure.												
Project 4782				Page 4 of 6 Pages				Exhibit R-2 (PE 0603856F)				

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2003				
BUDGET ACTIVITY					PE NUMBER AND TITLE				PROJECT		
04 - Advanced Component Development and Prototypes (ACD&P)					0603856F Air Force/National Program Cooperation (AFNPC)				4782		
(U) A. Project Cost Breakdown (\$ in Thousands)											
					<u>FY 2002</u>		<u>FY 2003</u>			<u>FY 2004</u>	
(U)	Technical support to the AF/NRO Integration Planning Group				838		837			0	
(U)	Develop processing capability to exploit SBIRS data for TI				1,414		1,654			0	
(U)	Total				2,252		2,491			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 2002</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget FY 2004</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Product Development Organizations</u>											
(U)	SMC	MIPR	12/98	14,177	14,177	2,662	1,414	1,654	0	0	5,730
<u>Support and Management Organizations</u>											
(U)	ANIPG	MIPR	10/98			2,150	838	837	0	0	3,825
<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 2002</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget FY 2004</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											
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 2003		
BUDGET ACTIVITY		PE NUMBER AND TITLE			PROJECT	
04 - Advanced Component Development and Prototypes (ACD&P)		0603856F Air Force/National Program Cooperation (AFNPC)			4782	
		<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>
		<u>to FY 2002</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>Complete</u>
<u>Subtotals</u>						<u>Total</u>
Subtotal Product Development		2,662	1,414	1,654	0	0
Subtotal Support and Management		2,150	838	837	0	0
Subtotal Test and Evaluation						
Total Project		4,812	2,252	2,491	0	0
						9,555

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE
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BUDGET ACTIVITY 04 - Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603858F Space-Based Radar Dem/Val	PROJECT A004
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COST (\$ in Thousands)	FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
A004 SBR Concept and Technology Development	0	47,149	274,104	358,669	467,459	503,772	1,178,181	1,547,545	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

In FY 2003, the Cost of War Transfer Account placed \$43.0M in S&T PE 0602500F for SBR support.

(U) A. Mission Description

The 2001, JROC validated, 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 C4ISR system capable of providing Surface Moving Target Indication (MTI), 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 which is not currently available with existing capabilities.

Technology maturation, risk reduction and concept development are essential elements of the SBR program definition. 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 C4ISR architecture. Modeling and simulation will maximize the operational capabilities of the SBR system. The 2004 program continues, but is not limited to Technology Risk Reduction activities. The program will leverage NRO, NIMA, DARPA and AFRL activities, in addition to the baseline SBR effort.

(U) FY 2002 (\$ in Thousands)

- (U) \$0 Accomplishments/Planned Program**
- (U) \$0 No Activity - Program funded in PE 0604251F, Space-Based Radar (SBR) EMD**
- (U) \$0 Total**

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE
BUDGET ACTIVITY 04 - Advanced Component Development and Prototypes (ACD&P)		February 2003
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 2003 (\$ in Thousands)</u></p> <p>(U) \$11,155 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) \$11,023 Continue Requirements Development (SBR system and operational requirements definition)</p> <p>(U) \$19,101 Begin Concept Definition for candidate operational system</p> <p>(U) \$5,870 Continue Program Support (Concept Evaluation, Schedule Management, Independent Cost Analysis, Technical Evaluation, Source Selection)</p> <p>(U) \$47,149 Total</p> <p>(U) <u>FY 2004 (\$ in Thousands)</u></p> <p>(U) \$133,000 Continue Technology Risk Reduction activities, including but not limited to acceleration of Electronically Scanned Array (ESA) and on-board processing efforts to include end-to-end payload prototype development and development of alternative signal processing algorithms); expand BMC3 effort to include interface identification and definition; provide ACTD support</p> <p>(U) \$119,104 Complete Concept Definition; additional efforts include but are not limited to development of precise costing methodologies and conduct modeling and simulation system performance and utility analyses; conduct up-front, in-depth system engineering efforts; develop an integrated end-to-end system architecture to include alternative communications architectures and mission management concepts; radar product development analysis; initiate comprehensive software architecture activities; explore and conduct testbed activities.</p> <p>(U) \$22,000 Continue Program Support (including but not limited to acquisition planning, schedule management, requirements development, source selection and financial management support)</p> <p>(U) \$274,104 Total</p> <p>(U) <u>B. Budget Activity Justification</u></p> <p>This program is Budget Activity 4, Advanced Component Development and Prototypes (ACDP), because it involves evaluating integrated technologies in as realistic an operating environment as possible to assess the performance or cost reduction potential of advanced technology.</p>		
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 2003				
BUDGET ACTIVITY				PE NUMBER AND TITLE			PROJECT				
04 - Advanced Component Development and Prototypes (ACD&P)				0603858F Space-Based Radar Dem/Val			A004				
(U) C. Program Change Summary (\$ in Thousands)											
				<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>		<u>Total Cost</u>			
(U)	Previous President's Budget				47,859	81,995		TBD			
(U)	Appropriated Value				47,859						
(U)	Adjustments to Appropriated Value										
	a. Congressional/General Reductions				-505						
	b. Small Business Innovative Research										
	c. Omnibus or Other Above Threshold Reprogram				-205						
	d. Below Threshold Reprogram										
	e. Rescissions										
(U)	Adjustments to Budget Years Since FY 2003 PBR					192,109					
(U)	Current Budget Submit/FY 2004 PBR				47,149	274,104		TBD			
	Note: FY02 funds were loaded in PE 0604251F.										
(U)	<u>Significant Program Changes:</u>										
	Cost of War Transfer Account funds identified in the FY03 PB for Space Based Radar were transferred into PE 0603858F in FY04.										
(U) D. Other Program Funding Summary (\$ in Thousands)											
		<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>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
		<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U)	AF RDT&E										
(U)	RDT&E - AF, PE 0604251F, Space-Based Radar (SBR) EMD (BA 05)	23,137									
(U)	RDT&E - AF, PE 0602500F, Multi-Disciplinary Space and Technology		42,546							0	42,546
(U)	Other APPN										
(U)	None										

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE February 2003																																																																																																																																																
BUDGET ACTIVITY 04 - Advanced Component Development and Prototypes (ACD&P)					PE NUMBER AND TITLE 0603858F Space-Based Radar Dem/Val					PROJECT A004																																																																																																																																																
<p>(U) <u>E. Acquisition Strategy</u> The Air Force will lead the SBR Joint Program Office with the National Reconnaissance Office (NRO) and National Imagery and Mapping Agency (NIMA) as the principal partners with other service active participation. The acquisition strategy will consist of a mixture of sole source and competitive award approaches.</p> <p>(U) <u>F. Schedule Profile</u></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th colspan="4"><u>FY 2002</u></th> <th colspan="4"><u>FY 2003</u></th> <th colspan="4"><u>FY 2004</u></th> </tr> <tr> <th></th> <th>1</th> <th>2</th> <th>3</th> <th>4</th> <th>1</th> <th>2</th> <th>3</th> <th>4</th> <th>1</th> <th>2</th> <th>3</th> <th>4</th> </tr> </thead> <tbody> <tr> <td>(U) AoA Start</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) AoA Completion</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>X</td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) Began Requirements Development</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) Began Technology Risk Reduction</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) Began Concept Definition</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) Initial CONOPs complete</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>X</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) Draft IRD to AFROC</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>X</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) Key Decision Point A (KDP-A)</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>X</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) Key Decision Point B (KDP-B)</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>X</td> <td></td> <td></td> </tr> </tbody> </table> <p>*= Completed Event, X = Planned Event</p> <p>Narrative: N/A</p>													<u>FY 2002</u>				<u>FY 2003</u>				<u>FY 2004</u>					1	2	3	4	1	2	3	4	1	2	3	4	(U) AoA Start		*											(U) AoA Completion									X				(U) Began Requirements Development		*											(U) Began Technology Risk Reduction		*											(U) Began Concept Definition					*								(U) Initial CONOPs complete						X							(U) Draft IRD to AFROC							X						(U) Key Decision Point A (KDP-A)							X						(U) Key Decision Point B (KDP-B)										X		
	<u>FY 2002</u>				<u>FY 2003</u>				<u>FY 2004</u>																																																																																																																																																	
	1	2	3	4	1	2	3	4	1	2	3	4																																																																																																																																														
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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 2003				
BUDGET ACTIVITY					PE NUMBER AND TITLE			PROJECT			
04 - Advanced Component Development and Prototypes (ACD&P)					0603858F Space-Based Radar Dem/Val			A004			
(U) A. Project Cost Breakdown (\$ in Thousands)											
					<u>FY 2002</u>		<u>FY 2003</u>			<u>FY 2004</u>	
(U)	Technology Risk Reduction effort						11,155			133,000	
(U)	Requirements Development						11,023			0	
(U)	Concept Definition for candidate operational system						19,101			119,104	
(U)	Program Support						5,870			22,000	
(U)	Total						47,149			274,104	
(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 2002</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget FY 2004</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>											
	Technology Risk Reduction Effort (Contractors TBD)	Various Contracts	Various	Continuing	Continuing		11,155	133,000		Continuing	TBD
	Requirements Development	FFRDC/SETA and GSA Contracts	Various	Continuing	Continuing		11,023	0	0		11,023
	Concept Definition	Competitive	Dec '02	Continuing	Continuing		19,101	119,104		Continuing	TBD
<u>Support and Management Organizations</u>											
	SMC, ESC, AFSPC & NRO	Various	Various				5,870	22,000		Continuing	TBD
<u>Test and Evaluation Organizations</u>											
	N/A										

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2003		
BUDGET ACTIVITY 04 - Advanced Component Development and Prototypes (ACD&P)				PE NUMBER AND TITLE 0603858F Space-Based Radar Dem/Val			PROJECT A004		
(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 2002</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</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 2002</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>Complete</u>	<u>Program</u>
Subtotal Product Development						41,279	252,104	TBD	TBD
Subtotal Support and Management						5,870	22,000	TBD	TBD
Subtotal Test and Evaluation									
Total Project						47,149	274,104	TBD	TBD

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 2003
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BUDGET ACTIVITY 04 - Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603859F Pollution Prevention	PROJECT 4852
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COST (\$ in Thousands)	FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
4852 Pollution Prevention	0	3,678	2,318	2,799	2,827	2,875	2,917	2,956	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

(U) **A. Mission Description**
 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.

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

(U) **FY 2003 (\$ in Thousands)**
 (U) \$798 Resource Conservation and Recovery Act (RCRA) Subtitle C - Hazardous Waste
 (U) \$2,278 Clean Air Act
 (U) \$199 Clean Water Act
 (U) \$299 Hazardous Material Reduction
 (U) \$104 Other
 (U) \$3,678 Total

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 2003																																																																			
BUDGET ACTIVITY 04 - Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603859F Pollution Prevention	PROJECT 4852																																																																			
<p>(U) <u>A. Mission Description Continued</u></p> <p>(U) <u>FY 2004 (\$ in Thousands)</u></p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 5%;">(U) \$848</td> <td>Resource Conservation and Recovery Act (RCRA) Subtitle C - Hazardous Waste</td> </tr> <tr> <td>(U) \$919</td> <td>Clean Air Act</td> </tr> <tr> <td>(U) \$167</td> <td>Clean Water Act</td> </tr> <tr> <td>(U) \$296</td> <td>Hazardous Material Reduction</td> </tr> <tr> <td>(U) \$88</td> <td>Other</td> </tr> <tr> <td>(U) \$2,318</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.</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 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: 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;">2,688</td> <td style="text-align: center;">2,743</td> <td style="text-align: center;">2,371</td> <td style="text-align: center;">TBD</td> </tr> <tr> <td>(U) Appropriated Value</td> <td style="text-align: center;">0</td> <td style="text-align: center;">2,743</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;">-65</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 2003 PBR</td> <td></td> <td style="text-align: center;">1,000</td> <td style="text-align: center;">-53</td> <td></td> </tr> <tr> <td>(U) Current Budget Submit/FY 2004 PBR</td> <td style="text-align: center;">0</td> <td style="text-align: center;">3,678</td> <td style="text-align: center;">2,318</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) \$848	Resource Conservation and Recovery Act (RCRA) Subtitle C - Hazardous Waste	(U) \$919	Clean Air Act	(U) \$167	Clean Water Act	(U) \$296	Hazardous Material Reduction	(U) \$88	Other	(U) \$2,318	Total		<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>Total Cost</u>	(U) Previous President's Budget	2,688	2,743	2,371	TBD	(U) Appropriated Value	0	2,743			(U) Adjustments to Appropriated Value					a. Congressional/General Reductions		-65			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 2003 PBR		1,000	-53		(U) Current Budget Submit/FY 2004 PBR	0	3,678	2,318	TBD
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Project 4852	Page 2 of 5 Pages	Exhibit R-2 (PE 0603859F)																																																																			

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE February 2003	
BUDGET ACTIVITY					PE NUMBER AND TITLE					PROJECT	
04 - Advanced Component Development and Prototypes (ACD&P)					0603859F Pollution Prevention					4852	
(U) D. Other Program Funding Summary (\$ in Thousands)											
	<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>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>	
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>		
(U) AF RDT&E											
(U) Other APPN											
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 2002</u>			<u>FY 2003</u>			<u>FY 2004</u>	
				1	2	3	4	1	2	3	4
(U) Prototype Development								*		X	
(U) Demonstration/Validation							X	X		X	X
(U) Contract Completion									X		X
Project 4852											
Page 3 of 5 Pages											
Exhibit R-2 (PE 0603859F)											

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2003				
BUDGET ACTIVITY 04 - Advanced Component Development and Prototypes (ACD&P)					PE NUMBER AND TITLE 0603859F Pollution Prevention			PROJECT 4852			
(U) A. Project Cost Breakdown (\$ in Thousands)											
						<u>FY 2002</u>		<u>FY 2003</u>		<u>FY 2004</u>	
(U)	Development Test and Evaluation					0		458		431	
(U)	Operational Test and Evaluation					0		1,935		797	
(U)	Contractor Engineering Support					0		986		838	
(U)	Program Management Support					0		217		182	
(U)	Miscellaneous					0		82		70	
(U)	Total					0		3,678		2,318	
(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 2002</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget FY 2004</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	680	0	1,800	913	Continuing	TBD
<u>Support and Management Organizations</u>											
	Aerospace Systems Center	TBD	30 Mar 00	N/A	N/A	706	0	667	183	Continuing	TBD
<u>Test and Evaluation Organizations</u>											
	Air Force Research Lab	TBD	30 Mar 00	N/A	N/A	1,022	0	1,211	1,222	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 2002</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget FY 2004</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				
BUDGET ACTIVITY		PE NUMBER AND TITLE			PROJECT	
04 - Advanced Component Development and Prototypes (ACD&P)		0603859F Pollution Prevention			February 2003 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>to FY 2002</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>Complete</u>	<u>Program</u>
<u>Subtotals</u>						
Subtotal Product Development	680	0	1,800	913	TBD	TBD
Subtotal Support and Management	706	0	667	183	TBD	TBD
Subtotal Test and Evaluation	1,022	0	1,211	1,222	TBD	TBD
Total Project	2,408	0	3,678	2,318	TBD	TBD

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE
February 2003

BUDGET ACTIVITY 04 - Advanced Component Development and Prototypes (ACD&P)				PE NUMBER AND TITLE 0603860F Joint Precision Approach and Landing Systems - Dem/Val					PROJECT 4652	
--	--	--	--	---	--	--	--	--	------------------------	--

COST (\$ in Thousands)		FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
4652	Precision Landing Systems	8,804	10,987	13,847	18,798	26,549	21,918	22,234	22,532	Continuing	TBD
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

(U) A. Mission Description

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 operations 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 shipboard 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 exists. 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 Global Positioning System (GPS) jamming. Second, its 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.

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE
		February 2003
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
04 - Advanced Component Development and Prototypes (ACD&P)	0603860F Joint Precision Approach and Landing Systems - Dem/Val	4652
(U) <u>A. Mission Description Continued</u>		
(U) <u>FY 2002 (\$ in Thousands)</u>		
(U) \$0	Accomplishments/Planned Programs	
(U) \$3,058	Continue aircraft risk (anti-jam) 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) \$1,329	Begin studies and analyses to refine local LDGPS architecture	
(U) \$8,804	Total	
(U) <u>FY 2003 (\$ in Thousands)</u>		
(U) \$0	Accomplishments/Planned Programs	
(U) \$2,965	Continue aircraft risk (anti-jam) and integration analyses	
(U) \$2,786	Continue development of LDGPS test bed	
(U) \$2,000	Continue studies and analyses to refine local LDGPS architecture	
(U) \$3,236	Begin modeling & simulation	
(U) \$10,987	Total	
(U) <u>FY 2004 (\$ in Thousands)</u>		
(U) \$0	Accomplishments/Planned Programs	
(U) \$3,558	Complete aircraft risk (anti-jam) and integration analyses	
(U) \$3,596	Complete development of LDGPS test bed	
(U) \$4,314	Complete studies and analyses to refine local LDGPS architecture	
(U) \$2,379	Complete modeling & simulation	
(U) \$13,847	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 2003		
BUDGET ACTIVITY					PE NUMBER AND TITLE					PROJECT		
04 - Advanced Component Development and Prototypes (ACD&P)					0603860F Joint Precision Approach and Landing Systems - Dem/Val					4652		
(U) C. Program Change Summary (\$ in Thousands)												
					<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>			<u>Total Cost</u>		
(U)	Previous President's Budget				9,342	13,267	14,164			TBD		
(U)	Appropriated Value				9,554	11,267						
(U)	Adjustments to Appropriated Value											
	a. Congressional/General Reductions				-212	-50						
	b. Small Business Innovative Research				-261							
	c. Omnibus or Other Above Threshold Reprogram					-111						
	d. Below Threshold Reprogram				-234							
	e. Rescissions					-119						
(U)	Adjustments to Budget Years Since FY 2003 PBR				-43		-317					
(U)	Current Budget Submit/FY 2004 PBR				8,804	10,987	13,847			TBD		
(U)	<u>Significant Program Changes:</u>											
(U) D. Other Program Funding Summary (\$ in Thousands)												
		<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>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>	
		<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>		
(U)	Other APPN											
(U) E. Acquisition Strategy												
Demonstration and Validation, multiple contracts (Firm Fixed Price (FFP), Indefinite Delivery/Indefinite Quantity (IDIQ), Cost Plus Fixed Fee (CPFF), Time and Materials (T&M), Cost Plus Award Fee (CPAF); no Non-Developmental Items (NDI)												
(U) F. Schedule Profile												
					<u>FY 2002</u>			<u>FY 2003</u>			<u>FY 2004</u>	
					1	2	3	4	1	2	3	4
(U)	Begin ALC studies and deployable ground station miniaturization					*						
(U)	Complete ALC studies and deployable ground station miniaturization							*				
(U)	Complete development of LDGPS test bed										X	
(U)	Complete aircraft risk (anti-jam) and integration analyzes											X
Project 4652					Page 3 of 7 Pages			Exhibit R-2 (PE 0603860F)				

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)							DATE February 2003					
BUDGET ACTIVITY	PE NUMBER AND TITLE						PROJECT					
04 - Advanced Component Development and Prototypes (ACD&P)	0603860F Joint Precision Approach and Landing Systems - Dem/Val						4652					
(U) <u>F. Schedule Profile Continued</u>												
		<u>FY 2002</u>			<u>FY 2003</u>			<u>FY 2004</u>				
	1	2	3	4	1	2	3	4	1	2	3	4
(U) Begin studies and analyses to refine local LDGPS architecture		*										
(U) Comple studies and analyses to refine local LDGPS architecture												X
(U) Begin modeling and simulation					*							
(U) Complete modeling and simulation effort												X
<p>X Denotes a planned event * Denotes a completed event</p>												
<p>Project 4652 Page 4 of 7 Pages Exhibit R-2 (PE 0603860F)</p>												

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)						DATE February 2003				
BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT		
04 - Advanced Component Development and Prototypes (ACD&P)				0603860F Joint Precision Approach and Landing Systems - Dem/Val				4652		
(U) A. Project Cost Breakdown (\$ in Thousands)										
						<u>FY 2002</u>		<u>FY 2003</u>		<u>FY 2004</u>
(U)	Prototype Developments - LDGPS test bed and Shipboard Relative GPS (SRGPS)					3,234		2,786		3,596
(U)	Prototype studies and analyses, ant-jam studies and analyses, LDGPS architecture definitions					3,075		3,812		6,349
(U)	ALC studies and deployable ground station miniaturizations					1,183				
(U)	Modeling, simulation and flight test of LDGPS test bed upgrades							3,236		2,379
(U)	Systems Engineering/Technical Support for architecture refinement					616		634		672
(U)	Responsible Test Organization activities to support prototype lab, van and flight testing					356		150		450
(U)	Program Management Support					285		294		322
(U)	Travel					55		75		79
(U)	Total					8,804		10,987		13,847
(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 2002</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget FY 2004</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Product Development Organizations</u>										
Raytheon Systems (LDGPS)	CPAF	May 99	N/A	N/A	13,007	840	0	0	0	13,847
Raytheon Systems (SRGPS)	CPFF	June 99	N/A	N/A	3,340	0	0	0	0	3,340
ARINC Inc.	FFP	Jan 99	N/A	N/A	1,757	0	0	0	0	1,757
Horizons Technology Inc	IDIQ	Feb 99	N/A	N/A	5,203	673	0	0	0	5,876
ACS Defense Inc.	IDIQ	May 02	N/A	N/A	0	400	1,496	1,586	Continuing	TBD
Rockwell Collins Inc.	FFP	Apr 99	N/A	N/A	1,800	0	0	0	0	1,800
Lockheed	FFP	TBD	N/A	N/A	0	0	300	0	0	300
Navy PMA21381	Reimbursable	Nov 99	N/A	N/A	16,336	0	0	0	0	16,336
MITRE Corporation	CPAF	Oct 99	N/A	N/A	1,949	1,100	1,133	1,167	Continuing	TBD
PRC Corporation	FFP	Jan 99	N/A	N/A	451	0	0	0	0	451
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 February 2003
BUDGET ACTIVITY					PE NUMBER AND TITLE					PROJECT
04 - Advanced Component Development and Prototypes (ACD&P)					0603860F Joint Precision Approach and Landing Systems - Dem/Val					4652
(U) Performing Organizations Continued:										
<u>Product Development Organizations</u>										
Pacer Infotech Inc.	FPPF	May 99	N/A	N/A	512	0	0	0	0	512
MCR	IDIQ	Apr 99	N/A	N/A	454	125	131	135	Continuing	TBD
Sierra Nevada Corp	CPFF	Mar 99	N/A	N/A	976	0	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	0	0	0	0	0
Various	Various	Various	N/A	N/A	4,832	289	808	856	0	6,785
ARINC Eng Services, LLC	T&M	Jun 02	N/A	N/A	0	4,681	6,600	9,252	0	20,533
<u>Support and Management Organizations</u>										
MITRE Corp	FFP	Various	N/A	N/A	651	235	250	273	Continuing	TBD
Various	FFP	Various	N/A	N/A	302	105	119	128	Continuing	TBD
<u>Test and Evaluation Organizations</u>										
Navy - NAWCAD	Reimbursable	Nov 99	N/A	N/A	1,041	0	0	0	0	1,041
48TG/XPRF	Reimbursable	May 01	N/A	N/A	150	356	150	450	0	1,106
(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 2002</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</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										
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 February 2003	
BUDGET ACTIVITY		PE NUMBER AND TITLE			PROJECT	
04 - Advanced Component Development and Prototypes (ACD&P)		0603860F Joint Precision Approach and Landing Systems - Dem/Val			4652	
		<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>
		<u>to FY 2002</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>Complete</u>
						<u>Total</u>
						<u>Program</u>
<u>Subtotals</u>						
Subtotal Product Development		50,860	8,108	10,468	12,996	TBD
Subtotal Support and Management		953	340	369	401	TBD
Subtotal Test and Evaluation		1,191	356	150	450	0
Total Project		53,004	8,804	10,987	13,847	TBD

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE
February 2003

BUDGET ACTIVITY
04 - Advanced Component Development and Prototypes
(ACD&P)

PE NUMBER AND TITLE
0604327F Hardened Target Munitions

PROJECT
4641

COST (\$ in Thousands)		FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
4641	Hard and Deeply Buried Target Defeat System (HDBTDS)	0	7,338	12,633	0	0	0	0	0	0	19,971
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

(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, a GBU-28 upgrade program was begun to enhance the effectiveness of the BLU-113 penetrator warhead against the hard and deeply buried target set, and integrate the new warhead into the GBU-28B/B system and the B-2 and F-15E aircraft. The BLU-113 warhead will be redesigned to increase weapon penetration, improve survivability. A nose redesign will improve penetration; an explosive upgrade will increase weapon lethality; a material upgrade will enhance warhead survivability; a fuze well redesign will enhance fuze survivability. These performance improvements would increase the number of targets within the target set held at risk; would reduce the number of weapons required to defeat the targets that were previously held at risk.

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE
BUDGET ACTIVITY		February 2003
04 - Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE	PROJECT
	0604327F Hardened Target Munitions	4641
(U) <u>A. Mission Description Continued</u>		
(U) <u>FY 2002 (\$ in Thousands)</u>		
(U) \$0	Accomplishments/Planned Program	
(U) \$0	No Activity	
(U) \$0	Total	
(U) <u>FY 2003 (\$ in Thousands)</u>		
(U) \$0	Accomplishments/Planned Program	
(U) \$1,638	Begin HDBTDS. Design warhead, integrate explosive and upgrade case material.	
(U) \$2,200	Weapon system and aircraft integration	
(U) \$700	Plan and prepare for testing redesigned warhead	
(U) \$500	Air Force Research Laboratory provide technical engineering design support and analysis.	
(U) \$1,800	Perform field agency activities, including project office and computer support to manage the Hardened Target Munitions program.	
(U) \$500	System Engineering and Technical Analysis (SETA) support including independent analysis and evaluation of prototype warhead designs.	
(U) \$7,338	Total	
(U) <u>FY 2004 (\$ in Thousands)</u>		
(U) \$0	Accomplishments/Planned Program	
(U) \$3,515	Design warhead, integrate explosive and upgrade case material.	
(U) \$2,642	Weapon system and aircraft integration	
(U) \$3,239	Plan and prepare for testing redesigned warhead	
(U) \$126	Air Force Research Laboratory provide technical engineering design support and analysis.	
(U) \$1,944	Perform field agency activities, including project office and computer support to manage the Hardened Target Munitions program.	
(U) \$1,167	System Engineering and Technical Analysis (SETA) support including independent analysis and evaluation of prototype warhead designs.	
(U) \$12,633	Total	
(U) <u>B. Budget Activity Justification</u>		
This program is in budget activity 4 - ACD&P, 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.		
Project 4641	Page 2 of 6 Pages	Exhibit R-2 (PE 0604327F)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE
February 2003

BUDGET ACTIVITY 04 - Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0604327F Hardened Target Munitions	PROJECT 4641
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(U) **C. Program Change Summary (\$ in Thousands)**

	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>Total Cost</u>
(U) Previous President's Budget	0	7,482	12,922	20,404
(U) Appropriated Value		7,482		7,482
(U) Adjustments to Appropriated Value				
a. Congressional/General Reductions				
b. Small Business Innovative Research				
c. Omnibus or Other Above Threshold Reprogram		-144		-144
d. Below Threshold Reprogram				
e. Rescissions				
(U) Adjustments to Budget Years Since FY 2003 PBR	0	0	-289	-289
(U) Current Budget Submit/FY 2004 PBR	0	7,338	12,633	19,971
(U) <u>Significant Program Changes:</u> Not Applicable				

(U) **D. Other Program Funding Summary (\$ in Thousands)**

	<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>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Procurement of Ammunition, Air Force				26,000	32,000	32,000			0	90,000

(U) **E. Acquisition Strategy**
This will be a competitive procurement for warhead design and integration of explosive and material upgrade. A sole source contract will be awarded for weapon systems and aircraft integration. GFE will be provided such as warhead explosive fill and steel case material.

(U) **F. Schedule Profile**

	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE February 2003			
BUDGET ACTIVITY					PE NUMBER AND TITLE					PROJECT			
04 - Advanced Component Development and Prototypes (ACD&P)					0604327F Hardened Target Munitions					4641			
(U) <u>F. Schedule Profile Continued</u>													
		<u>FY 2002</u>					<u>FY 2003</u>					<u>FY 2004</u>	
		1	2	3	4	1	2	3	4	1	2	3	4
(U)	Begin Warhead Design						X						
(U)	Conduct Subscale Testing									X			
(U)	Manufacture Prototype Warheads										X		
(U)	Integrate Warhead with Weapon System												X
(U)	Begin Aircraft Integration												X
	X - Planned event												
	Note: Begin Warhead Design moved from 1Q03 to 3Q03 because FY03 funding was not received until late in 1Q03 for this new start program and the time necessary to conduct a competition for the warhead prime contractor. Consequently, the follow-on milestones moved to the right in FY04.												
Project 4641				Page 4 of 6 Pages				Exhibit R-2 (PE 0604327F)					

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2003				
BUDGET ACTIVITY					PE NUMBER AND TITLE			PROJECT			
04 - Advanced Component Development and Prototypes (ACD&P)					0604327F Hardened Target Munitions			4641			
(U) A. Project Cost Breakdown (\$ in Thousands)											
						<u>FY 2002</u>		<u>FY 2003</u>		<u>FY 2004</u>	
(U)	Warhead Design					0		1,638		3,515	
(U)	Weapon System and Aircraft Integration					0		2,200		2,642	
(U)	Test Planning and Preparation					0		700		3,239	
(U)	AFRL Engineering					0		500		126	
(U)	Field Agency and Contract Support					0		1,800		1,944	
(U)	SETA Support					0		500		1,167	
(U)	Total					0		7,338		12,633	
(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 2002</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget FY 2004</u>	<u>Budget to Complete</u>	<u>Total Program</u>	
<u>Product Development Organizations</u>											
Prime Contractor	CPFF/IF	May 03	TBD	TBD	0	0	1,638	3,515	0	5,153	
Raytheon	SS/CP	Aug 03	TBD	TBD	0	0	2,200	2,642	0	4,842	
<u>Support and Management Organizations</u>											
AFRL	MIPR	May 03	N/A	N/A	0	0	500	126	0	626	
AAC/WMG (Eglin)	MIPR	May 03	N/A	N/A	0	0	1,800	1,944	0	3,744	
SETA Contractor	Various	May 03	N/A	N/A	0	0	500	1,167	0	1,667	
<u>Test and Evaluation Organizations</u>											
DTRA/WSMR	MIPR	Aug 03	N/A	N/A	0	0	250	111	0	361	
Qual/Certification testing -- Organizations at Eglin	MIPR	Nov 03	N/A	N/A	0	0	450	2,977	0	3,427	

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)				DATE		
BUDGET ACTIVITY				PROJECT		
04 - Advanced Component Development and Prototypes (ACD&P)				0604327F Hardened Target Munitions		
				February 2003		
				4641		
(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>Item</u>	<u>or Funding</u>	<u>Date</u>	<u>Date</u>	<u>to FY 2002</u>	<u>FY 2002</u>	<u>FY 2003</u>
<u>Description</u>	<u>Vehicle</u>					<u>Budget</u>
						<u>FY 2004</u>
						<u>Budget to</u>
						<u>Complete</u>
						<u>Total</u>
						<u>Program</u>
<u>Product Development Property</u>						
N/A						
<u>Support and Management Property</u>						
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<u>Test and Evaluation Property</u>						
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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE
February 2003

BUDGET ACTIVITY 04 - Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0604435F Interim Polar	PROJECT A010
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COST (\$ in Thousands)	FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
A010 Advanced Polar System	0	0	13,740	82,345	225,091	175,805	137,718	135,411	13,600	783,710
Quantity of RDT&E Articles	0	0	0	0	0	0	0	1	1	2

FY04 new start effort: Project A010, Advanced Polar System (APS) within PE 0604435F will provide surviving and enduring SATCOM in the north polar region as an extension of the current Interim Polar, PE 0603432F, system. Note: PE 0604435F will be renamed Advanced Polar System.

(U) A. Mission Description

The Advanced Polar System (APS) will provide next generation protected EHF SATCOM capability in the north polar region starting in FY09 based on the Jul 95 Polar MILSATCOM ORD. APS will also support tactical users who require anti-jam and low probability of detection EHF SATCOM. It's need date and requirements for nuclear hardening make it a stand alone requirement rather than just a follow-on to the Interim Polar capability. APS is part of the Air Force's Transformational Communications Architecture. The results of the Transformational Communications Architecture definition in FY03 will affect the APS program content. The current APS program will acquire three satellites (2 funded with RDT&E and one fully funded with missile procurement) and survivable ground gateways.

(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) FY 2004 (\$ in Thousands)

(U) \$11,000 Concept definition and Analysis of alternatives contract
(U) \$2,740 Program Office and other related support activities
(U) \$13,740 Total

(U) B. Budget Activity Justification

This program is in Budget Activity 04 - Advanced Component Development and Prototypes (ACD&P), because it supports concept definition of a communication system.

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE
February 2003

BUDGET ACTIVITY
04 - Advanced Component Development and Prototypes
(ACD&P)

PE NUMBER AND TITLE
0604435F Interim Polar

PROJECT
A010

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

	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>Total Cost</u>
(U) Previous President's Budget	0	0	0	0
(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 2003 PBR			13,740	783,710
(U) Current Budget Submit/FY 2004 PBR			13,740	783,710

(U) **Significant Program Changes:**

Air Force FY04 new start program. Protected Polar SATCOM requirements documented in the Jul 95 Polar MILSATCOM ORD, which is currently being updated and will incorporate the results of the Transformational Communications Architecture.

(U) **D. Other Program Funding Summary (\$ in Thousands)**

	<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>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Other APPN	0	0	0	0	0	0	0	0	0	0
(U) OPAF, PE 0604435F, Interim Polar	0	0	0	0	0	0	51,927	138,959	2,829	193,715
(U) MPAF, PE 0604435F, Interim Polar	0	0	0	0	0	0	21,744	119,143	81,800	222,687

(U) **E. Acquisition Strategy**

The Advanced Polar System will be a competitive acquisition. Hosting an EHF package such as was done with Interim Polar was considered, but did not meet requirements. The results of the Transformational Communications Architecture definition in FY03 will affect the APS program content.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)							DATE February 2003						
BUDGET ACTIVITY 04 - Advanced Component Development and Prototypes (ACD&P)				PE NUMBER AND TITLE 0604435F Interim Polar				PROJECT A010					
(U) <u>F. Schedule Profile</u>													
		<u>FY 2002</u>				<u>FY 2003</u>				<u>FY 2004</u>			
	1	2	3	4	1	2	3	4	1	2	3	4	
(U)	Concept Definition Contract Award									X			
	First launch scheduled for 2009												
Project A010										Page 3 of 5 Pages		Exhibit R-2 (PE 0604435F)	

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2003				
BUDGET ACTIVITY 04 - Advanced Component Development and Prototypes (ACD&P)					PE NUMBER AND TITLE 0604435F Interim Polar			PROJECT A010			
(U) A. Project Cost Breakdown (\$ in Thousands)											
					FY 2002		FY 2003			FY 2004	
(U)	Concept Definition				0		0			11,000	
(U)	Program Office and other related support activities									2,740	
(U)	Total				0		0			13,740	
(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 2002</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget FY 2004</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Product Development Organizations</u>											
	TBD Contracts				0	0	0	11,000	694,970	705,970	
<u>Support and Management Organizations</u>											
	TBD				0	0	0	2,740	75,000	77,740	
<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 2002</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget FY 2004</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 2003			
BUDGET ACTIVITY		PE NUMBER AND TITLE			PROJECT		
04 - Advanced Component Development and Prototypes (ACD&P)		0604435F Interim Polar			A010		
		<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	
		<u>to FY 2002</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>Complete</u>	
						<u>Total</u>	
	<u>Subtotals</u>					<u>Program</u>	
	Subtotal Product Development	0	0	0	11,000	694,970	705,970
	Subtotal Support and Management	0	0	0	2,740	75,000	77,740
	Subtotal Test and Evaluation						
	Total Project	0	0	0	13,740	769,970	783,710

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE
February 2003

BUDGET ACTIVITY 04 - Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0604855F Operationally Responsive Launch	PROJECT A013
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COST (\$ in Thousands)	FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
A013 Operationally Responsive Launch	0	0	24,440	35,455	23,418	35,557	41,017	73,920	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	Continuing	TBD

In FY 2004, this is a new PE.

In FY 2004, PE 0604855F, Operationally Responsive Launch, Project A013, Operationally Responsive Launch, is a new start in order to meet some of the requirements of the Operationally Responsive Spacelift Mission Needs Statement.

(U) A. Mission Description

The 2002 Operationally Responsive Spacelift (ORS) Mission Needs Statement (MNS) establishes the requirement for responsive, on-demand access to, through and from space. This requirement encompasses the spacelift missions of delivering payloads to, or from, mission orbit and changing the orbit of existing systems to better satisfy new mission requirements. It also requires on-demand, flexible, and cost effective operations.

In December 2002 the DepSecDef directed the Air Force and the Defense Advanced Research Projects Agency (DARPA) to establish a joint program office to accelerate the Operationally Responsive Spacelift (ORS) effort to meet portions of this requirement. This ORS program is focused on the development and transition of more mature technologies into a future weapon system capable of delivering and deploying conventional payloads world wide from and through space. Concept development, risk reduction and technology maturation are the key elements in the ORS program; and demonstrations, modeling and simulations are the critical tools.

(U) FY 2002 (\$ in Thousands)

- (U)** \$0 Accomplishments/Planned Program
- (U)** \$0 Not Applicable
- (U)** \$0 Total

(U) FY 2003 (\$ in Thousands)

- (U)** \$0 Accomplishments/Planned Program
- (U)** \$0 Not Applicable
- (U)** \$0 Total

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 2003		
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT		
04 - Advanced Component Development and Prototypes (ACD&P)	0604855F Operationally Responsive Launch	A013		
(U) <u>A. Mission Description Continued</u>				
(U) <u>FY 2004 (\$ in Thousands)</u>				
(U) \$0	Accomplishments/Planned Program			
(U) \$2,000	Perform analysis, design, and costing for operationally responsive spacelift solution. Analyze alternative concepts and assess military utility for operationally responsive spacelift requirements.			
(U) \$21,940	Conduct launch vehicle design and development, systems engineering, and program assessment leading to an operationally responsive launch system solution.			
(U) \$500	Conduct flight demonstration planning and range requirements analysis for early demonstrations.			
(U) \$24,440	Total			
(U) <u>B. Budget Activity Justification</u>				
This program is Budget Activity 4, Advanced Component Development and Prototypes (ACDP), because it involves evaluating integrated technologies in as realistic an operating environment as possible to assess the performance or cost reduction potential of advanced technology.				
(U) <u>C. Program Change Summary (\$ in Thousands)</u>				
	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>Total Cost</u>
(U) Previous President's Budget				
(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 2003 PBR			24,440	
(U) Current Budget Submit/FY 2004 PBR			24,440	TBD
(U) <u>Significant Program Changes:</u>				
FY 2004 new start				
Project A013	Page 2 of 5 Pages	Exhibit R-2 (PE 0604855F)		

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)							DATE February 2003				
BUDGET ACTIVITY 04 - Advanced Component Development and Prototypes (ACD&P)				PE NUMBER AND TITLE 0604855F Operationally Responsive Launch				PROJECT A013			
(U) D. Other Program Funding Summary (\$ in Thousands)											
	<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>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>	
	Actual	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Complete		
(U) AF RDT&E											
(U) None											
(U) Other APPN											
(U) None											
(U) E. Acquisition Strategy											
Efforts will be executed by a joint AF/DARPA program office. Projects funded under this program 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.											
(U) F. Schedule Profile											
				<u>FY 2002</u>			<u>FY 2003</u>		<u>FY 2004</u>		
				1	2	3	4	1	2	3	4
(U) Alternative analyses, military utility									X		
(U) Launch Vehicle Development										X	
(U) Flight Demonstration Planning									X		
X = Planned Event											
Project A013			Page 3 of 5 Pages				Exhibit R-2 (PE 0604855F)				

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2003				
BUDGET ACTIVITY					PE NUMBER AND TITLE			PROJECT			
04 - Advanced Component Development and Prototypes (ACD&P)					0604855F Operationally Responsive Launch			A013			
(U) A. Project Cost Breakdown (\$ in Thousands)											
					<u>FY 2002</u>			<u>FY 2003</u>		<u>FY 2004</u>	
(U)	Alternative analyses, military utility									2,000	
(U)	Launch Vehicle Development									21,940	
(U)	Flight demonstration planning									500	
(U)	Total									24,440	
(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 2002</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget FY 2004</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Product Development Organizations</u>										
	Joint AF/DARPA Program Office	various	various	TBD	TBD				22,440	Continuing	TBD
	<u>Support and Management Organizations</u>										
	AFSPC/DR	Various Competitive Contracts	TBD	TBD	TBD				2,000	Continuing	TBD
	<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 2002</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget FY 2004</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 2003				
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT				
04 - Advanced Component Development and Prototypes (ACD&P)	0604855F Operationally Responsive Launch	A013				
(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>to FY 2002</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>Complete</u>
<u>Subtotals</u>						<u>Total</u>
Subtotal Product Development				22,440	TBD	TBD
Subtotal Support and Management				2,000	TBD	TBD
Subtotal Test and Evaluation						
Total Project				24,440	TBD	TBD

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									DATE February 2003			
BUDGET ACTIVITY 04 - Advanced Component Development and Prototypes (ACD&P)					PE NUMBER AND TITLE 0604856F Common Aero Vehicle					PROJECT A012		
COST (\$ in Thousands)			FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
A012	Common Aero Vehicle		0	0	12,220	21,667	27,321	32,631	31,514	39,537	Continuing	TBD
	Quantity of RDT&E Articles		0	0	0	0	0	0	0	0	Continuing	TBD
<p>In FY 2004, this is a new PE.</p> <p>In FY 2004, PE 0604856F, Common Aero Vehicle, Project A012, Common Aero Vehicle, is a new start in order to meet the requirements of the Prompt Global Strike Mission Needs Statement.</p> <p>(U) <u>A. Mission Description</u> The Prompt Global Strike (PGS) Mission Needs Statement (MNS) establishes the requirement for rapid conventional strike worldwide to counter the proliferation of weapons of mass destruction and provide a forward presence without forward deployment. In December 2002 the DepSecDef directed the Air Force and Defense Advanced Research Projects Agency (DARPA) to establish a joint program office to accelerate the Common Aero Vehicle effort to meet this requirement. The Common Aero Vehicle program is focused on the development and transition of more mature technologies into a future weapon system capable of delivering and deploying conventional payloads world wide from and through space.</p> <p>(U) <u>FY 2002 (\$ in Thousands)</u> (U) \$0 Accomplishments/Planned Program (U) \$0 Not Applicable (U) \$0 Total</p> <p>(U) <u>FY 2003 (\$ in Thousands)</u> (U) \$0 Accomplishments/Planned Program (U) \$0 Not Applicable (U) \$0 Total</p>												
Project A012			Page 1 of 5 Pages					Exhibit R-2 (PE 0604856F)				

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 2003																																																							
BUDGET ACTIVITY 04 - Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0604856F Common Aero Vehicle	PROJECT A012																																																							
<p>(U) <u>A. Mission Description Continued</u></p> <p>(U) <u>FY 2004 (\$ in Thousands)</u></p> <p>(U) \$0 Accomplishments/Planned Program</p> <p>(U) \$2,040 Analyze alternative common aero vehicle concepts, designs, and provide an analysis of military utility for such extended range, prompt strike vehicles. Conduct in depth requirements analysis and modeling of vehicle trajectories, flight profiles, weapon effects, and lethality applied to critical missions.</p> <p>(U) \$9,380 Conduct vehicle design studies, systems engineering and program assessments leading to the selection of a final design.</p> <p>(U) \$800 Conduct flight demonstration planning and range requirements analyses.</p> <p>(U) \$12,220 Total</p> <p>(U) <u>B. Budget Activity Justification</u></p> <p>This program is Budget Activity 4, Advanced Component Development and Prototypes (ACDP), because it involves evaluating 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 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>Total Cost</u></th> </tr> </thead> <tbody> <tr> <td>(U) Previous President's Budget</td> <td></td> <td></td> <td></td> <td></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> <tr> <td>(U) Adjustments to Budget Years Since FY 2003 PBR</td> <td></td> <td></td> <td style="text-align: right;">12,220</td> <td></td> </tr> <tr> <td>(U) Current Budget Submit/FY 2004 PBR</td> <td></td> <td></td> <td style="text-align: right;">12,220</td> <td style="text-align: right;">TBD</td> </tr> </tbody> </table> <p>(U) <u>Significant Program Changes:</u> FY 2004 new start</p>				<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>Total Cost</u>	(U) Previous President's Budget					(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 2003 PBR			12,220		(U) Current Budget Submit/FY 2004 PBR			12,220	TBD
	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>Total Cost</u>																																																					
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(U) Current Budget Submit/FY 2004 PBR			12,220	TBD																																																					
Project A012	Page 2 of 5 Pages	Exhibit R-2 (PE 0604856F)																																																							

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 2003		
BUDGET ACTIVITY	PE NUMBER AND TITLE							PROJECT		
04 - Advanced Component Development and Prototypes (ACD&P)	0604856F Common Aero Vehicle							A012		
(U) D. Other Program Funding Summary (\$ in Thousands)										
	<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>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	Actual	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Complete	
(U) AF RDT&E										
(U) None										
(U) Other APPN										
(U) Defensewide RDT&E, DARPA, PE 0603285E, HyperSoar		7,500	21,500	25,000	40,000	50,000	50,000	50,000	Continuing	TBD
(U) E. Acquisition Strategy										
A joint Air Force - DARPA program office will execute these efforts. The acquisition strategy will consist of a mixture of sole source and competitive award approaches.										
(U) F. Schedule Profile										
			<u>FY 2002</u>			<u>FY 2003</u>			<u>FY 2004</u>	
			1	2	3	4	1	2	3	4
(U) Alternative analysis start									X	
(U) Begin vehicle design studies									X	
(U) Begin flight demonstration planning									X	
X = Planned Event										
Project A012			Page 3 of 5 Pages				Exhibit R-2 (PE 0604856F)			

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2003				
BUDGET ACTIVITY					PE NUMBER AND TITLE			PROJECT			
04 - Advanced Component Development and Prototypes (ACD&P)					0604856F Common Aero Vehicle			A012			
(U) A. Project Cost Breakdown (\$ in Thousands)											
					<u>FY 2002</u>		<u>FY 2003</u>			<u>FY 2004</u>	
(U)	Alternative analysis									2,040	
(U)	Concept designs									9,380	
(U)	Flight demonstration planning									800	
(U)	Total									12,220	
(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 2002</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget FY 2004</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Product Development Organizations</u>										
	Joint AF-DARPA Program Office	various	various	TBD	TBD				12,220	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 or Funding Vehicle</u>	<u>Award or Obligation Date</u>	<u>Delivery Date</u>		<u>Total Prior to FY 2002</u>	<u>Budget FY 2002</u>	<u>Budget FY 2003</u>	<u>Budget FY 2004</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Product Development Property</u>										
	None										
	<u>Support and Management Property</u>										
	None										
Project A012					Page 4 of 5 Pages			Exhibit R-3 (PE 0604856F)			

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)				DATE February 2003		
BUDGET ACTIVITY		PE NUMBER AND TITLE			PROJECT	
04 - Advanced Component Development and Prototypes (ACD&P)		0604856F Common Aero Vehicle			A012	
(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 2002</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>Complete</u>
						<u>Total</u>
<u>Subtotals</u>						
Subtotal Product Development					12,220	TBD
Subtotal Support and Management						
Subtotal Test and Evaluation						
Total Project					12,220	TBD

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