

## UNCLASSIFIED

PE NUMBER: 0303140F

PE TITLE: Information Systems Security Program

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

DATE

February 2005

## BUDGET ACTIVITY

## 07 Operational System Development

## PE NUMBER AND TITLE

## 0303140F Information Systems Security Program

| Cost (\$ in Millions)  | FY 2004<br>Actual | FY 2005<br>Estimate | FY 2006<br>Estimate | FY 2007<br>Estimate | FY 2008<br>Estimate | FY 2009<br>Estimate | FY 2010<br>Estimate | FY 2011<br>Estimate | Cost to<br>Complete | Total |
|--|-------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|-------|
| Total Program Element (PE) Cost  | 51.649            | 84.542              | 109.292             | 175.012             | 315.639             | 199.504             | 296.230             | 205.267             | Continuing          | TBD   |
| 4579 Adv Security Solutions & Technologies (ASST)                        | 4.954             | 5.380               | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               | Continuing          | TBD   |
| 4861 Electronic Key Mgmt Sys - Key Mgmt Sys Infrastructure (AF EKMS-KMI) | 9.202             | 2.762               | 3.320               | 3.600               | 7.430               | 6.163               | 6.044               | 5.994               | Continuing          | TBD   |
| 4871 Information Operations Technology                                   | 0.706             | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               | 6.238 |
| 5100 Cryptographic Modernization   | 28.974            | 69.945              | 101.869             | 165.674             | 302.166             | 185.978             | 282.656             | 191.614             | Continuing          | TBD   |
| 7820 Computer Security RDT&E: Firestarter                                | 7.813             | 6.455               | 4.103               | 5.738               | 6.043               | 7.363               | 7.530               | 7.659               | Continuing          | TBD   |

## NOTES:

1. In FY 2005, Project 4579 Information Warfare was terminated. To better reflect the multiple Congressional adds received in this project it has been renamed Advanced Security Solutions and Technologies (ASST) and its Mission Statement rewritten to reflect the new focus.
2. Project 4861, formerly Cryptologic 2000, has been retitled Electronic Key Management System - Key Management Infrastructure (EKMS-KMI) to reflect the program's progress and future direction.
3. In FY2005 and out, Project 4871, Information Operations Technology, was transferred to PE 0305887, Intelligence Support to Information Warfare, Project 0374, Information Warfare Support.

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

This program provides the capability to protect and defend USAF Command, Control, Communications, Computers, and Intelligence, Surveillance, and Reconnaissance (C4ISR) and Weapon Systems from Information Warfare (IW) attacks; and to recover from those attacks. Primarily, the project does research and development of information protection tools and transitions them to operational systems.

Project 4579, Advanced Security Solutions and Technologies, develops defensive information warfare solutions for AF Command and Control (C2), Intelligence, Surveillance, and Reconnaissance (ISR) systems. Within ASST, Cyber Lighthouse is a cyber security research and development program managed by the Air Forces HQ Electronic Systems Center (ESC). This program identifies information assurance (IA) gaps in systems, develops and validates new technological countermeasures, and seeks to rapidly transition these solutions to operational users. It is designed to address those research needs that are not currently being addressed by other sources. Cyber Lighthouse investigates the feasibility of various cyber technologies and in selected cases will progress to develop and prototype a system to resolve a known cyber vulnerability. The Center for Infrastructure Assurance and Security (CIAS) is also managed and funded from within this project. The CIAS provides multi-disciplinary information assurance research and development, academic, and operational-based program addressing both technical and policy

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issues.

Project 4861, EKMS-KMI, efforts will allow the AF to migrate from the current legacy manual system of generation, distribution, accounting, training, and material management of AF cryptographic keying materials to the new DoD Electronic Key Management System and secure Key Management Infrastructure being acquired by NSA. Because the keying material will be transmitted electronically over a secure network, with no man-in-the-loop, potential compromise of the Keys will be drastically reduced; and the time required for transmission to the user will become virtually instantaneous. The EKMS equipment procurement and fielding is well underway. The R&D portion of the AF EKMS-KMI Program is supporting sustainment and building interfaces to the next generation KMI. The warfighter will continue to use EKMS for the next four to five years -- having access to it through the old EKMS hierarchy OR through the new KMI hierarchy and its EKMS interfaces. Eventually the KMI capability will spiral to the point of taking over the EKMS functions completely.

Project 5100, AF Crypto Modernization, is part of a Joint Program led by NSA to modernize and transform the Type 1 Cryptographic Inventory throughout DoD. Not only will algorithms be upgraded, but reprogrammable chips will be used in the Crypto Devices. Thus, the next generation of algorithm upgrades will incur only the cost to reprogram those chips. The total inventory will be greatly reduced by doing a box-for-family of systems/functions replacement rather than the current box-for-box replacement; and the logistics requirements will be greatly simplified and reduced. The total inventory and logistics requirements are also reduced by going to multi-purpose, joint solution crypto devices instead of the Service unique inventory we now have.

Project 7820, Computer Security RDT&E: Firestarter, encompasses the R&D of information protection technology and tools to defend C4ISR systems, with emphasis on computer and network systems security, damage assessment and recovery, and secure distributed computing capabilities. It provides access control, integrity, assured services and meets warfighter's requirements.

This program is in budget activity 7, Operational System Development, because it addresses the development and transition of information security, protection and defensive capabilities and technologies.

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

|                                      | <u>FY 2004</u> | <u>FY 2005</u> | <u>FY 2006</u> | <u>FY 2007</u> |
|--------------------------------------|----------------|----------------|----------------|----------------|
| (U) Previous President's Budget      | 47.718         | 79.625         | 109.735        | 216.535        |
| (U) Current PBR/President's Budget   | 51.649         | 84.542         | 109.292        | 175.012        |
| (U) Total Adjustments                | 3.931          | 4.917          |                |                |
| (U) Congressional Program Reductions | 0.000          |                |                |                |
| Congressional Rescissions            | 0.000          | -1.583         |                |                |
| Congressional Increases              | 0.000          | 7.500          |                |                |
| Reprogrammings                       | 5.358          | -1.000         |                |                |
| SBIR/STTR Transfer                   | -1.427         |                |                |                |

(U) **Significant Program Changes:**

Project 5100, Cryptographic Modernization (CM), has undergone significant reprioritization of individual CM projects to be addressed. This has driven a major revision of the CM schedule of projects. This was due primarily to a more detailed scoping of user requirements for each of the CM projects; specifically, to the findings among the

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| <b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>  |   | DATE<br><b>February 2005</b> |
| BUDGET ACTIVITY<br><b>07 Operational System Development</b>  | PE NUMBER AND TITLE<br><b>0303140F Information Systems Security Program</b> |                              |
| <p>space systems community of users. Consequently, the Air Force has reallocated (primarily due to the acceleration and rephasing of Space CM efforts) the individual CM funding lines to match the new schedule for FY07 and out.</p> |   |                              |
| <p>R-1 Shopping List - Item No. 171-4 of 171-31</p>  |   |                              |
| <p>Exhibit R-2 (PE 0303140F)</p>   |   |                              |

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| Exhibit R-2a, RDT&E Project Justification   |                   |                     |  |                     |   |                     |                     |  | DATE<br><b>February 2005</b> |       |
|---|-------------------|---------------------|--|---------------------|---|---------------------|---------------------|--|------------------------------|-------|
| BUDGET ACTIVITY<br><b>07 Operational System Development</b>   |                   |                     |  |                     | PE NUMBER AND TITLE<br><b>0303140F Information Systems Security Program</b> |                     |                     | PROJECT NUMBER AND TITLE<br><b>4579 Adv Security Solutions &amp; Technologies (ASST)</b> |                              |       |
| Cost (\$ in Millions)   | FY 2004<br>Actual | FY 2005<br>Estimate | FY 2006<br>Estimate                          | FY 2007<br>Estimate | FY 2008<br>Estimate   | FY 2009<br>Estimate | FY 2010<br>Estimate | FY 2011<br>Estimate  | Cost to<br>Complete          | Total |
| 4579 Adv Security Solutions & Technologies (ASST)   | 4.954             | 5.380               | 0.000  | 0.000               | 0.000   | 0.000               | 0.000               | 0.000  | Continuing                   | TBD   |
| Quantity of RDT&E Articles  | 0                 | 0                   | 0  | 0                   | 0   | 0                   | 0                   | 0  |                              |       |
| <p>In FY 2005, Project 4579 Information Warfare was terminated. To better reflect the multiple Congressional Adds received in this project the project has been renamed Advanced Security Solutions &amp; Technologies (ASST) and its Mission Statement rewritten to reflect the new focus.</p> <p>(U) <b><u>A. Mission Description and Budget Item Justification</u></b></p> <p>The Advanced Security Solutions and Technologies (ASST) funding line will cover the following items:</p> <p>Cyber Lighthouse is a cyber security research and development program managed by the Air Forces HQ Electronic Systems Center (ESC). The program identifies information assurance (IA) gaps in systems, develops and validates new technological countermeasures, and seeks to rapidly transition these solutions to operational users. It is designed to address those research needs that are not currently being addressed by other sources. Cyber Lighthouse investigates the feasibility of a cyber technology and in selected cases will progress to develop and prototype a system to resolve a known cyber vulnerability. Examples include the following:</p> <p>Cyber Lighthouse researchers are developing technologies that will counter spoofing of Global Positioning System (GPS) timing transmissions.</p> <p>Research and development efforts are underway to provide a Security Policy Integrated Correlation Engine (SPICE) that will better enable the Air Force to manage the effectiveness of their security boundaries based on global and local implementations of network traffic rules from Air Force's Ports, Protocols, and Services (PP&amp;S) Matrix policies. Embedded within SPICE will be an Insider Threat component that is currently being developed.</p> <p>Research and development efforts are underway to provide an Integrated SATCOM Interference Detection and Response (ISIDR) system to develop geo-location of jamming and interference sources.</p> <p>Research, development, demonstration, and integration of Large Scale Analysis Tools (LAST), a new set of operator decision support tools that utilizes router connection data to provide preemptive warning against new virus/work attacks, identification of low and slow network probing and identification of network anomalies.</p> <p>The Center for Infrastructure Assurance and Security (CIAS) at the University of Texas at San Antonio (UTSA) is a multidisciplinary information assurance research and development, academic and operational -based program addressing technical and policy issues. The CIAS, working closely with the Air Intelligence Agency (AIA), currently conducts numerous research projects to include an efficient wireless encryption algorithm, high-speed intrusion detection and detection of steganographic content.</p> <p>Current intrusion detection techniques, including those employed by the Air Force, utilize a variety of techniques including the examination of packet contents. High-Speed Intrusion Detection is needed as network speeds increase (IPv6 protocol) the ability to conduct real-time packet analysis and correlation becomes more difficult. Research is being conducted to perform intrusion detection in hardware to increase the speeds it can be accomplished. A prototype board has been built and will be coupled with kernel-level, host-based intrusion detection to allow for packet inspection in the face of encrypted traffic.</p> <p>The CIAS is also developing improved methods to protect critical infrastructures by conducting cyber security exercises. The aim is to identify the following:</p> |                   |                     |  |                     |   |                     |                     |  |                              |       |
| Project 4579  |                   |                     | R-1 Shopping List - Item No. 171-5 of 171-31 |                     |   |                     |                     | Exhibit R-2a (PE 0303140F)   |                              |       |

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

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reliance of military establishments on locally operated services; how military bases and posts participate in testing the local critical infrastructures; and how would they participate and respond to possible attacks.

This project is in Budget Activity 7, Operational System Development, because it addresses the development and transition of information security, protection, and defensive capabilities and technologies.

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

|   | <u>FY 2004</u> | <u>FY 2005</u> | <u>FY 2006</u> | <u>FY 2007</u> |
|---|----------------|----------------|----------------|----------------|
| (U) Manage Cyber Lighthouse Security Technology Development Program (Congressional Add)   | 0.967          | 2.460          | 0.000          | 0.000          |
| (U) Manage the Center for Infrastructure Assurance and Security (CIAS) (Congressional Add)  | 1.951          | 1.960          | 0.000          | 0.000          |
| (U) Manage Enabling Technologies for Information Assurance (IA) (Congressional Add)   | 0.966          | 0.960          | 0.000          | 0.000          |
| (U) Completed Exportable Vulnerability Assessment/Risk Management (VA/RM) Attack Trees  | 0.480          | 0.000          | 0.000          | 0.000          |
| (U) Completed IA Architecture Infrastructure Assessments, but will continue as a participant in the Architecture Council Meetings | 0.590          | 0.000          | 0.000          | 0.000          |
| (U) Transferred responsibility for IO SA IPT activities, analyses, database support   | 0.000          | 0.000          | 0.000          | 0.000          |
| (U) Transferred responsibility for cross-domain solutions   | 0.000          | 0.000          | 0.000          | 0.000          |
| (U) Cancelled Common Access Card (CAC) concept exploration and prototyping of wireless technologies                               | 0.000          | 0.000          | 0.000          | 0.000          |
| (U) Cancelled Migration of Attack Tree Methodology for enterprise Mission Assurance Support System (eMASS)                        | 0.000          | 0.000          | 0.000          | 0.000          |
| (U) Total Cost  | 4.954          | 5.380          | 0.000          | 0.000          |

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

|                | <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>FY 2010</u>  | <u>FY 2011</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 |                |                 |                 |                 |                 |                 |                 |                 |                 |                   |
| N/A            |                |                 |                 |                 |                 |                 |                 |                 |                 |                   |

(U) **D. Acquisition Strategy**

All major contracts within this Program Element are awarded after full and open competition.

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## Exhibit R-3, RDT&amp;E Project Cost Analysis

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| (U) <u>Cost Categories</u><br>(Tailor to WBS, or System/Item<br>Requirements)<br>(\$ in Millions) | <u>Contract</u><br><u>Method &amp;</u><br><u>Type</u> | <u>Performing</u><br><u>Activity &amp;</u><br><u>Location</u>       | <u>Total</u><br><u>Prior to FY</u><br><u>2004</u><br><u>Cost</u> | <u>FY 2004</u><br><u>Cost</u> | <u>FY 2004</u><br><u>Award</u><br><u>Date</u> | <u>FY 2005</u><br><u>Cost</u> | <u>FY 2005</u><br><u>Award</u><br><u>Date</u> | <u>FY 2006</u><br><u>Cost</u> | <u>FY 2006</u><br><u>Award</u><br><u>Date</u> | <u>FY 2007</u><br><u>Cost</u> | <u>FY 2007</u><br><u>Award</u><br><u>Date</u> | <u>Cost to</u><br><u>Complete</u> | <u>Total Cost</u> | <u>Target</u><br><u>Value of</u><br><u>Contract</u> |
|---|---|---|--|-------------------------------|---|-------------------------------|---|-------------------------------|---|-------------------------------|---|-----------------------------------|-------------------|---|
| (U) <u>Product Development</u>  |   |   |  |                               |   |                               |   |                               |   |                               |   |                                   |                   |   |
| Cyber Lighthouse contracts for computer security RDT&E  | CPFF  | MITRE, San Antonio, TX  | 30.272   | 1.753                         | Oct-03  | 1.835                         | Mar-05  | 0.000                         |   | 0.000                         |   | 0.000                             | 33.860            | TBD   |
| Cyber Lighthouse contracts for computer security RDT&E  | CRNF  | MIT/Lincoln Labs, Boston, MA  | 2.992  | 0.813                         | Oct-03  | 0.994                         | Mar-05  | 0.000                         |   | 0.000                         |   | 0.000                             | 4.799             | TBD   |
| Cyber Lighthouse contracts for computer security RDT&E  | CRNF  | Carnegie-Mellon Software Engineering Institute (SEI) Pittsburgh, PA | 1.444  | 0.288                         | Oct-03  | 0.369                         | Mar-05  | 0.000                         |   | 0.000                         |   | 0.000                             | 2.101             | TBD   |
| Center for Infrastructure Assurance and Security (CIAS) Projects                                  | RL Grant /CRADA                                       | University of TX San Antonio, San Antonio, TX                       | 3.500  | 2.100                         | Mar-03  | 2.182                         | Mar-05  | 0.000                         |   | 0.000                         |   | 0.000                             | 7.782             | TBD   |
| Subtotal Product Development  |   |   | 38.208   | 4.954                         |   | 5.380                         |   | 0.000                         |   | 0.000                         |   | 0.000                             | 48.542            | TBD   |
| Remarks:  |   |   |  |                               |   |                               |   |                               |   |                               |   |                                   |                   |   |
| (U) Total Cost  |   |   | 38.208   | 4.954                         |   | 5.380                         |   | 0.000                         |   | 0.000                         |   | 0.000                             | 48.542            | TBD   |

## Exhibit R-4, RDT&amp;E Schedule Profile

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PROJECT NUMBER AND TITLE

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Technologies (ASST)

## Exhibit R-4: BPAC 4579, ASST (p 1 of 1)

| Fiscal Year                          | FY 04 |   |   |   | FY 05 |   |   |   | FY 06 |   |   |   | FY 07 |   |   |   | FY 08 |   |   |   | FY 09 |   |   |   | FY 10 |   |   |   | FY 11 |  |  |  |
|--------------------------------------|-------|---|---|---|-------|---|---|---|-------|---|---|---|-------|---|---|---|-------|---|---|---|-------|---|---|---|-------|---|---|---|-------|--|--|--|
|                                      | 1     | 2 | 3 | 4 | 1     | 2 | 3 | 4 | 3     | 4 | 3 | 4 | 1     | 2 | 3 | 4 | 1     | 2 | 3 | 4 | 1     | 2 | 3 | 4 | 1     | 2 | 3 | 4 |       |  |  |  |
| Manage Cyber Lighthouse              |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |  |  |  |
| Architecture Councils                |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |  |  |  |
| Manage CIAS                          |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |  |  |  |
| Manage Enabling Technologies for IA  |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |  |  |  |
| KMI                                  |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |  |  |  |
| GIG End-to-End Study                 |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |  |  |  |
| SPICE                                |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |  |  |  |
| Completed CAC & wireless tech        |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |  |  |  |
| Transferred responsibility IO SA IPT |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |  |  |  |

☆ Major Event or Milestone

Planned Ongoing Activity

Ongoing Activity that is Complete

▲ Completed Event

△ Planned Task(s)

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## Exhibit R-4a, RDT&amp;E Schedule Detail

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**4579 Adv Security Solutions &  
Technologies (ASST)****(U) Schedule Profile**FY 2004FY 2005FY 2006FY 2007

(U) Manage Cyber Lighthouse Program

(U) Manage the Center for Infrastructure Assurance and Security (CIAS)

(U) Manage Enabling Technologies for IA (Congressional Add)

(U) Participate in IA Architecture Councils

(U) Completed Exportable VA/RM Attack Trees

(U) Completed IA Architecture Infrastructure Assessments

(U) Transferred the integration of cross-domain solutions

(U) Transferred support of the IO SA IPT activities, analysis, database support

(U) Cancelled CAC concept exploration and prototype wireless

(U) Cancelled the Migration of Attack Tree Methodology for enterprise Mission Assurance Support System (eMASS)

1-4Q

1-4Q

1-4Q

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1-4Q

4Q

4Q

4Q

4Q



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|---|-------------------|---------------------|---------------------|---------------------|---|---------------------|---------------------|---|------------------------------|-------|--|----------------|----------------|----------------|----------------|---|-------|--|--|--|---|-------|--|--|--|--|-------|-------|-------|-------|
| BUDGET ACTIVITY<br><b>07 Operational System Development</b>   |                   |                     |                     |                     | PE NUMBER AND TITLE<br><b>0303140F Information Systems Security Program</b> |                     |                     | PROJECT NUMBER AND TITLE<br><b>4861 Electronic Key Mgmt Sys - Key Mgmt Sys Infrastructure (AF EKMS-KMI)</b> |                              |       |  |                |                |                |                |   |       |  |  |  |   |       |  |  |  |  |       |       |       |       |
| Cost (\$ in Millions)   | FY 2004<br>Actual | FY 2005<br>Estimate | FY 2006<br>Estimate | FY 2007<br>Estimate | FY 2008<br>Estimate   | FY 2009<br>Estimate | FY 2010<br>Estimate | FY 2011<br>Estimate   | Cost to<br>Complete          | Total |  |                |                |                |                |   |       |  |  |  |   |       |  |  |  |  |       |       |       |       |
| 4861 Electronic Key Mgmt Sys - Key Mgmt Sys Infrastructure (AF EKMS-KMI)  | 9.202             | 2.762               | 3.320               | 3.600               | 7.430   | 6.163               | 6.044               | 5.994   | Continuing                   | TBD   |  |                |                |                |                |   |       |  |  |  |   |       |  |  |  |  |       |       |       |       |
| Quantity of RDT&E Articles  | 0                 | 0                   | 0                   | 0                   | 0   | 0                   | 0                   | 0   |                              |       |  |                |                |                |                |   |       |  |  |  |   |       |  |  |  |  |       |       |       |       |
| <p>NOTES: Project 4861, formerly Cryptologic 2000, has been retitled Electronic Key Management System - Key Management Infrastructure (EKMS-KMI) to reflect the program's progress and future direction. The AF EKMS-KMI Program will soon concentrate more of its R&amp;D activities toward developing the AF Key Management Infrastructure (KMI). The program's R&amp;D efforts will include building the AF KMI architecture, defining all its linkages, and building the interfaces that will allow them to communicate.</p> <p>(U) <b><u>A. Mission Description and Budget Item Justification</u></b></p> <p>The EKMS-KMI Project consists of multiple developments supporting the Air Force Electronic Key Management Systems and emerging Key Management Infrastructure (AFEKMS-KMI). AFEKMS-KMI, in concert with National Security Agency's (NSA's) overarching EKMS and KMI, provides a secure and flexible capability for the electronic generation, distribution, accounting, and management of key material, voice callwords, and communications security (COMSEC) publications for AF Command, Control, Communications, Computers, and Intelligence (C4I) and weapon systems. AFEKMS-KMI replaces the existing physical distribution and management system providing cryptographic keying material for USAF Information Assurance. Information Assurance emphasizes confidentiality, access control, multi-level secure databases, trusted computing and information integrity. AFEKMS-KMI is a three-tier system structure in a hierarchical arrangement. This tiered structure provides 'wholesale' to 'retail' to 'consumer' capability to distribute, manage and account for COMSEC keying material. Tier 1 installations comprise the wholesale generation and control capability. Tier 2 installations comprise the local distribution network and Tier 3 comprises the retail where keying material leaves the AFEKMS-KMI and enters the consumer Information Assurance Components (IACs).</p> <p>AFEKMS-KMI improves protection of National Security-related information by substantially enhancing confidentiality, integrity, and non-repudiation characteristics over legacy key management systems. AFEKMS-KMI is greatly accelerating availability of crypto key materials through electronic transmission vice shipping of materials, and will enhance mission responsiveness and flexibility. While much of the current AFEKMS-KMI level-of-effort is directed at enhancing current and developing systems, the ultimate aim is to provide a migration path to future functionality planned under NSA's Key Management Infrastructure (KMI) initiative. Beginning KMI functionality is expected in 2008.</p> <p>This project is in Budget Activity 7, Operational System Development, because it addresses the development and transition of information security, protection, and defensive capabilities and technologies.</p> <p>(U) <b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b></p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></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> </tr> </thead> <tbody> <tr> <td>(U) Managed Enterprise Data Warehouse (Congressional Add)</td> <td style="text-align: center;">4.600</td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) Managed Services Support Information Systems Security Program (ISSP) for Northcom (Congressional Add)</td> <td style="text-align: center;">1.000</td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) Continue program office contract support for Air Force Key Management planning, migration to the Key</td> <td style="text-align: center;">0.794</td> <td style="text-align: center;">0.602</td> <td style="text-align: center;">1.309</td> <td style="text-align: center;">1.334</td> </tr> </tbody> </table> |                   |                     |                     |                     |   |                     |                     |   |                              |       |  | <u>FY 2004</u> | <u>FY 2005</u> | <u>FY 2006</u> | <u>FY 2007</u> | (U) Managed Enterprise Data Warehouse (Congressional Add) | 4.600 |  |  |  | (U) Managed Services Support Information Systems Security Program (ISSP) for Northcom (Congressional Add) | 1.000 |  |  |  | (U) Continue program office contract support for Air Force Key Management planning, migration to the Key | 0.794 | 0.602 | 1.309 | 1.334 |
|   | <u>FY 2004</u>    | <u>FY 2005</u>      | <u>FY 2006</u>      | <u>FY 2007</u>      |   |                     |                     |   |                              |       |  |                |                |                |                |   |       |  |  |  |   |       |  |  |  |  |       |       |       |       |
| (U) Managed Enterprise Data Warehouse (Congressional Add)   | 4.600             |                     |                     |                     |   |                     |                     |   |                              |       |  |                |                |                |                |   |       |  |  |  |   |       |  |  |  |  |       |       |       |       |
| (U) Managed Services Support Information Systems Security Program (ISSP) for Northcom (Congressional Add)   | 1.000             |                     |                     |                     |   |                     |                     |   |                              |       |  |                |                |                |                |   |       |  |  |  |   |       |  |  |  |  |       |       |       |       |
| (U) Continue program office contract support for Air Force Key Management planning, migration to the Key  | 0.794             | 0.602               | 1.309               | 1.334               |   |                     |                     |   |                              |       |  |                |                |                |                |   |       |  |  |  |   |       |  |  |  |  |       |       |       |       |
| <div style="display: flex; justify-content: space-between;"> <span>Project 4861</span> <span>R-1 Shopping List - Item No. 171-10 of 171-31</span> <span>Exhibit R-2a (PE 0303140F)</span> </div>  |                   |                     |                     |                     |   |                     |                     |   |                              |       |  |                |                |                |                |   |       |  |  |  |   |       |  |  |  |  |       |       |       |       |

## UNCLASSIFIED

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

DATE

February 2005

## BUDGET ACTIVITY

07 Operational System Development

## PE NUMBER AND TITLE

0303140F Information Systems  
Security Program

## PROJECT NUMBER AND TITLE

4861 Electronic Key Mgmt Sys - Key  
Mgmt Sys Infrastructure (AF  
EKMS-KMI)

Management Infrastructure, and AFKMS-KMI deployment

(U) Continue End User Application Software Development: Common UAS, Local Management Device 2.808 2.160 2.011 2.266  
(LMD/Data Management Device (DMD) and computer-based training

(U)

(U) Total Cost 9.202 2.762 3.320 3.600

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

|                             | <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>FY 2010</u>  | <u>FY 2011</u>  | <u>Cost to</u>  | <u>Total Cost</u> |
|-----------------------------|----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-------------------|
|                             | <u>Actual</u>  | <u>Estimate</u> | <u>Estimate</u> | <u>Estimate</u> | <u>Estimate</u> | <u>Estimate</u> | <u>Estimate</u> | <u>Estimate</u> | <u>Complete</u> |                   |
| (U) AF Other Procurement PE | 11.002         | 3.062           | 19.341          | 7.677           | 10.562          | 7.931           | 20.974          | 21.093          |                 | TBD               |
| 0303140F                    |                |                 |                 |                 |                 |                 |                 |                 |                 |                   |

(U) **D. Acquisition Strategy**

All major contracts within this Project are awarded after full and open competition.

## UNCLASSIFIED

| Exhibit R-3, RDT&E Project Cost Analysis  |                              |  |                                      |                 |                          |  |                          |                 |                          |                 |  | DATE<br>February 2005 |            |                                |  |
|---|------------------------------|--|--------------------------------------|-----------------|--------------------------|--|--------------------------|-----------------|--------------------------|-----------------|--|-----------------------|------------|--------------------------------|--|
| BUDGET ACTIVITY<br>07 Operational System Development  |                              |  |                                      |                 |                          | PE NUMBER AND TITLE<br>0303140F Information Systems Security Program |                          |                 |                          |                 | PROJECT NUMBER AND TITLE<br>4861 Electronic Key Mgmt Sys - Key Mgmt Sys Infrastructure (AF EKMS-KMI) |                       |            |                                |  |
| (U) Cost Categories<br>(Tailor to WBS, or System/Item Requirements)<br>(\$ in Millions)       | Contract<br>Method &<br>Type | Performing<br>Activity &<br>Location                                   | Total<br>Prior to FY<br>2004<br>Cost | FY 2004<br>Cost | FY 2004<br>Award<br>Date | FY 2005<br>Cost  | FY 2005<br>Award<br>Date | FY 2006<br>Cost | FY 2006<br>Award<br>Date | FY 2007<br>Cost | FY 2007<br>Award<br>Date   | Cost to<br>Complete   | Total Cost | Target<br>Value of<br>Contract |  |
| (U) Product Development   |                              |  |                                      |                 |                          |  |                          |                 |                          |                 |  |                       |            |                                |  |
| End User Application Software Development   | T&M                          | Science Applications International Corporation (SAIC), San Antonio, TX | 3.488                                | 2.808           | Oct-03                   | 2.160  | Oct-04                   | 2.011           | Oct-05                   | 2.266           | Oct-06   | Continuing            | TBD        | TBD                            |  |
| Architectural planning & Migration (to) the KMI Infrastructure                                | CPFF                         | Mitre, San Antonio, TX   | 0.620                                | 0.794           | Oct-03                   | 0.602  | Oct-04                   | 1.309           | Oct-05                   | 1.334           | Oct-06   | Continuing            | TBD        | TBD                            |  |
| Enterprise Data Warehouse (Congressional Add)   |                              |  |                                      | 4.600           |                          |  |                          |                 |                          |                 |  |                       | 4.600      |                                |  |
| Services Support Information Systems Security Program (ISSP) for Northcom (Congressional Add) |                              |  |                                      | 1.000           |                          |  |                          |                 |                          |                 |  |                       | 1.000      |                                |  |
| Subtotal Product Development  |                              |  | 4.108                                | 9.202           |                          | 2.762  |                          | 3.320           |                          | 3.600           |  | Continuing            | TBD        | TBD                            |  |
| Remarks:  |                              |  |                                      |                 |                          |  |                          |                 |                          |                 |  |                       |            |                                |  |
| (U) N/A   |                              |  |                                      |                 |                          |  |                          |                 |                          |                 |  |                       |            |                                |  |
| (U) Total Cost  |                              |  | 4.108                                | 9.202           |                          | 2.762  |                          | 3.320           |                          | 3.600           |  | Continuing            | TBD        | TBD                            |  |
| Remarks:  | N/A                          |  |                                      |                 |                          |  |                          |                 |                          |                 |  |                       |            |                                |  |
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|   |                              |  |                                      |                 |                          |  |                          |                 |                          |                 |  |                       |            |                                |  |
|   |                              |  |                                      |                 |                          |  |                          |                 |                          |                 |  |                       |            |                                |  |
|   |                              |  |                                      |                 |                          |  |                          |                 |                          |                 |  |                       |            |                                |  |
|   |                              |  |                                      |                 |                          |  |                          |                 |                          |                 |  |                       |            |                                |  |
|   |                              |  |                                      |                 |                          |  |                          |                 |                          |                 |  |                       |            |                                |  |
|   |                              |  |                                      |                 |                          |  |                          |                 |                          |                 |  |                       |            |                                |  |
|   |                              |  |                                      |                 |                          |  |                          |                 |                          |                 |  |                       |            |                                |  |
|   |                              |  |                                      |                 |                          |  |                          |                 |                          |                 |  |                       |            |                                |  |
|   |                              |  |                                      |                 |                          |  |                          |                 |                          |                 |  |                       |            |                                |  |
|   |                              |  |                                      |                 |                          |  |                          |                 |                          |                 |  |                       |            |                                |  |
|   |                              |  |                                      |                 |                          |  |                          |                 |                          |                 |  |                       |            |                                |  |
|   |                              |  |                                      |                 |                          |  |                          |                 |                          |                 |  |                       |            |                                |  |
|   |                              |  |                                      |                 |                          |  |                          |                 |                          |                 |  |                       |            |                                |  |
|   |                              |  |                                      |                 |                          |  |                          |                 |                          |                 |  |                       |            |                                |  |
|   |                              |  |                                      |                 |                          |  |                          |                 |                          |                 |  |                       |            |                                |  |
|   |                              |  |                                      |                 |                          |  |                          |                 |                          |                 |  |                       |            |                                |  |
|   |                              |  |                                      |                 |                          |  |                          |                 |                          |                 |  |                       |            |                                |  |
|   |                              |  |                                      |                 |                          |  |                          |                 |                          |                 |  |                       |            |                                |  |
|   |                              |  |                                      |                 |                          |  |                          |                 |                          |                 |  |                       |            |                                |  |
|   |                              |  |                                      |                 |                          |  |                          |                 |                          |                 |  |                       |            |                                |  |

## Exhibit R-4, RDT&amp;E Schedule Profile

DATE

February 2005

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0303140F Information Systems  
Security Program

PROJECT NUMBER AND TITLE

4861 Electronic Key Mgmt Sys - Key  
Mgmt Sys Infrastructure (AF  
EKMS-KMI)

## Exhibit R-4: BPAC 4861, AF EKMS-KMI

| Fiscal Year  | FY 04 |   |   |   | FY 05 |   |   |   | FY 06 |   |   |   | FY 07 |   |   |   | FY 08 |   |   |   | FY 09 |   |   |   | FY 10 |   |   |   | FY 11 |  |  |  |
|--|-------|---|---|---|-------|---|---|---|-------|---|---|---|-------|---|---|---|-------|---|---|---|-------|---|---|---|-------|---|---|---|-------|--|--|--|
|  | 1     | 2 | 3 | 4 | 1     | 2 | 3 | 4 | 1     | 2 | 3 | 4 | 1     | 2 | 3 | 4 | 1     | 2 | 3 | 4 | 1     | 2 | 3 | 4 | 1     | 2 | 3 | 4 |       |  |  |  |
| Architectural planning & migration to Key Mgmt. Infrastructure |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |  |  |  |
| User Application Software Development                          |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |  |  |  |



Major Event or Milestone



Planned Ongoing Activity



Ongoing Activity that is Complete



Completed Event



Planned Task(s)

**UNCLASSIFIED**

[illegible]

## UNCLASSIFIED

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

DATE

February 2005

## BUDGET ACTIVITY

07 Operational System Development

## PE NUMBER AND TITLE

0303140F Information Systems  
Security Program

## PROJECT NUMBER AND TITLE

4871 Information Operations  
Technology

| Cost (\$ in Millions)                  | FY 2004<br>Actual | FY 2005<br>Estimate | FY 2006<br>Estimate | FY 2007<br>Estimate | FY 2008<br>Estimate | FY 2009<br>Estimate | FY 2010<br>Estimate | FY 2011<br>Estimate | Cost to<br>Complete | Total |
|--|-------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|-------|
| 4871 Information Operations Technology | 0.706             | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               | 6.238 |
| Quantity of RDT&E Articles             | 0                 | 0                   | 0                   | 0                   | 0                   | 0                   | 0                   | 0                   |                     |       |

In FY2005, Project 4871, Information Operations Technology, efforts were transferred to PE 0305887, Intelligence Support to Information Warfare, Project 0374, Information Warfare Support.

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

(U) This program expedited Information Operations (IO) Technology transition from laboratory, industry, and academia to operational use via studies, rapid prototyping, and demonstrations.

(U) The program office investigated and selected the highest potential IO technologies to meet specific shortfalls and deficiencies documented by major commands (MAJCOMS), unified commands, and IO agencies in Mission Area Plans (MAP) and Mission Need Statements (MNS). IO areas considered include: Psychological Operations (PSYOP), Electronic Warfare, Military Deception, Physical Attack, Information Attack, Information Assurance, Operational Security (OPSEC), Counterintelligence, Counter PSYOP, Electronic Protection, and Counterdeception.

(U) The program office worked directly with labs, industry, users and battle labs to set priorities and find synergistic combinations of new technology, doctrine and training. Program efforts will be prioritized and guided by the Information Warfare (IW) Solutions Analysis Integrated Planning Team (SA IPT) in support of the Air Force IW MAP and the DoD IO Master Plan.

(U) Planned areas of study prototyping, and/or demonstration include technique and technologies for defending systems against sophisticated Information Warfare (IW) and computer network attacks, exploiting Integrated Air Defense Systems (IADS), Command and Control systems, and applying advanced IO applications in emerging physics, communications, directed energy, electronic sensors, and intelligence.

(U) This program also funded the Panther Den (PD) Program Office at Hanscom AFB, MA. The Panther Den Program Office provides technical, program management, and security support to the programs funded by this PE, as well as PD-classified projects funded via other PEs.

(U) Specific program content was classified. Current and historical project information is available in the Panther Den (PD) Special Access Program (SAP) Report.

(U) This project is in Budget Activity 7, Operational System Development, because it addresses the development and transition of information security, protection, and defensive capabilities and technologies.

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

|  | <u>FY 2004</u> | <u>FY 2005</u> | <u>FY 2006</u> | <u>FY 2007</u> |
|--|----------------|----------------|----------------|----------------|
| (U) The IO Technology Program supported the Information Warfare Solutions Analysis (IW SA) IPT and the IW Mission Area Team (MAT) through studies, rapid prototyping, and demonstrations of state-of-the-art IO technologies to meet the warfighters' IO requirements. | 0.706          | 0.000          | 0.000          | 0.000          |
| (U) Total Cost   | 0.706          | 0.000          | 0.000          | 0.000          |

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

DATE

February 2005

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0303140F Information Systems  
Security Program

PROJECT NUMBER AND TITLE

4871 Information Operations  
Technology(U) C. Other Program Funding Summary (\$ in Millions)

|  | <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>FY 2010</u>  | <u>FY 2011</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

0.000

This project's studies leveraged current DoD lab efforts. Studies were deconflicted with and complemented PE 0208021F, Information Warfare Support. Some aspects of this program were protected under the Panther Den Special Access Program.

(U) D. Acquisition Strategy

All major contracts within this Project used existing pre-competed contracts and added tasks/delivery orders to them.

## UNCLASSIFIED

## Exhibit R-3, RDT&amp;E Project Cost Analysis

DATE

February 2005

## BUDGET ACTIVITY

07 Operational System Development

## PE NUMBER AND TITLE

0303140F Information Systems  
Security Program

## PROJECT NUMBER AND TITLE

4871 Information Operations  
Technology

| (U) Cost Categories<br>(Tailor to WBS, or System/Item<br>Requirements)<br>(\$ in Millions) | <u>Contract</u><br><u>Method &amp;</u><br><u>Type</u>                                | <u>Performing</u><br><u>Activity &amp;</u><br><u>Location</u> | <u>Total</u><br><u>Prior to FY</u><br><u>2004</u><br><u>Cost</u> | <u>FY 2004</u><br><u>Cost</u> | <u>FY 2004</u><br><u>Award</u><br><u>Date</u> | <u>FY 2005</u><br><u>Cost</u> | <u>FY 2005</u><br><u>Award</u><br><u>Date</u> | <u>FY 2006</u><br><u>Cost</u> | <u>FY 2006</u><br><u>Award</u><br><u>Date</u> | <u>FY 2007</u><br><u>Cost</u> | <u>FY 2007</u><br><u>Award</u><br><u>Date</u> | <u>Cost to</u><br><u>Complete</u> | <u>Total Cost</u> | <u>Target</u><br><u>Value of</u><br><u>Contract</u> |
|--|--|---|--|-------------------------------|---|-------------------------------|---|-------------------------------|---|-------------------------------|---|-----------------------------------|-------------------|---|
| (U) <u>Product Development</u>   |  |   |  |                               |   |                               |   |                               |   |                               |   |                                   |                   |   |
| Lockheed-Martin  | CPFF   | Boston, MA  | 1.778  | 0.473                         | Oct-03  | 0.000                         |   | 0.000                         |   | 0.000                         |   | 0.000                             | 2.251             | 2.251   |
| BAE Systems  | CPFF   | Boston, MA  | 0.285  | 0.048                         | Oct-03  | 0.000                         |   | 0.000                         |   | 0.000                         |   | 0.000                             | 0.333             | 0.333   |
| Mitre  | CPFF   | Boston, MA  | 0.469  | 0.185                         | Oct-03  | 0.000                         |   | 0.000                         |   | 0.000                         |   | 0.000                             | 0.654             | 0.654   |
| Subtotal Product Development   |  |   | 2.532  | 0.706                         |   | 0.000                         |   | 0.000                         |   | 0.000                         |   | 0.000                             | 3.238             | 3.238   |
| Remarks:   | Continuing under its own PE, PE 0305887, Intelligence Support to Information Warfare |   |  |                               |   |                               |   |                               |   |                               |   |                                   |                   |   |
| (U) Total Cost   |  |   | 2.532  | 0.706                         |   | 0.000                         |   | 0.000                         |   | 0.000                         |   | 0.000                             | 3.238             | 3.238   |



## Exhibit R-4, RDT&amp;E Schedule Profile

DATE

February 2005

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0303140F Information Systems  
Security Program

PROJECT NUMBER AND TITLE

4871 Information Operations  
Technology

# Exhibit R-4: BPAC 4871 Information Operations Technology (p 1 of 1)

| Fiscal Year  | FY 04 |   |   |   | FY 05 |   |   |   | FY 06 |   |   |   | FY 07 |   |   |   | FY 08 |   |   |   | FY 09 |   |   |   | FY 10 |   |   |   | FY 11 |   |   |   |
|--|-------|---|---|---|-------|---|---|---|-------|---|---|---|-------|---|---|---|-------|---|---|---|-------|---|---|---|-------|---|---|---|-------|---|---|---|
|  | 1     | 2 | 3 | 4 | 1     | 2 | 3 | 4 | 1     | 2 | 3 | 4 | 1     | 2 | 3 | 4 | 1     | 2 | 3 | 4 | 1     | 2 | 3 | 4 | 1     | 2 | 3 | 4 | 1     | 2 | 3 | 4 |
| IO Technology<br>Study/Prototype/bi-<br>annual Demos |       | ▲ |   | ▲ |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |



Major Event or Milestone



Planned Ongoing Activity



Ongoing Activity that is Complete



Completed Event



Planned Task(s)

## UNCLASSIFIED

## Exhibit R-4a, RDT&amp;E Schedule Detail

DATE

February 2005

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0303140F Information Systems  
Security Program

PROJECT NUMBER AND TITLE

4871 Information Operations  
Technology(U) Schedule ProfileFY 2004FY 2005FY 2006FY 2007

(U) IO Technology Study/Prototype

1-4Q

(U) Bi-annual IO Technology Demos

2-4Q

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

DATE

February 2005

| BUDGET ACTIVITY<br>07 Operational System Development |                   |                     |                     |                     | PE NUMBER AND TITLE<br>0303140F Information Systems Security Program |                     |                     | PROJECT NUMBER AND TITLE<br>5100 Cryptographic Modernization |                     |       |
|--|-------------------|---------------------|---------------------|---------------------|--|---------------------|---------------------|--|---------------------|-------|
| Cost (\$ in Millions)                                | FY 2004<br>Actual | FY 2005<br>Estimate | FY 2006<br>Estimate | FY 2007<br>Estimate | FY 2008<br>Estimate  | FY 2009<br>Estimate | FY 2010<br>Estimate | FY 2011<br>Estimate  | Cost to<br>Complete | Total |
| 5100 Cryptographic Modernization                     | 28.974            | 69.945              | 101.869             | 165.674             | 302.166  | 185.978             | 282.656             | 191.614  | Continuing          | TBD   |
| Quantity of RDT&E Articles                           | 0                 | 0                   | 0                   | 0                   | 0  | 0                   | 0                   | 0  |                     |       |

NOTE: The CTIC/CDH project which was in the FY04 and FY05 PBs has been cancelled by the CJCS. This change to the program will be formally documented in the upcoming revision to the Secret document, CJCSI 6510, Communications Security (COMSEC) Modernization Plan (U).

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

The AF Cryptographic Modernization (CM) Program goal is to develop a modern Type I cryptographic base that supports security, interoperability, flexibility, programmability, key management infrastructure compatibility and transforms to the next generation of cryptographic capabilities. This support and transformation will provide US forces, operating unilaterally or in combination with multinational and interagency partners, with the security needed to protect the flow and exchange of operational decision-making information. The urgent need for CM is critical, as existing cryptographic units are quickly reaching service life end. Near-term replacement of vulnerable systems must occur immediately and within the timeframe specified by the Chairman of the Joint Chiefs of Staff (CJCS) in CJCS Notice (CJSCN) 6510, Communications Security (COMSEC) Modernization Plan. CM technology and cryptographic operational studies will determine capability gaps, redundancies, best practices and technology advances, ultimately enhancing future cryptographic warfighting capabilities. Additionally, modernization of the cryptographic inventory, through incremental improvements will support the evolutionary transformation of network operations.

Replacement Effort: Four near-term replacement efforts are identified: KG-3X and KI-22 (KS-60) both support the Nuclear Command and Control (NC2) mission; Communication Security/Transportation Security (COMSEC/TRANSEC) Integrated Circuit/DS-101 Hybrid (CTIC/CDH) was an integrated circuit cryptographic engine used primarily for data links; Interrogator Friend-or-Foe (IFF) Mode 5 is an upgrade that improves secure airborne/air traffic situation awareness. The CTIC/CDH Project, as noted, has been cancelled.

Modernization Effort: The modernization effort will include analyzing inventory suitability in a network-centric environment while evaluating capability gaps, redundancies, and best practices. The following modernization strategies will be accomplished: development of single solutions for multiple cryptographic end items with same capability; incorporation of new and emerging technologies; incremental capability enhancements; inclusion of modernized key management techniques; and modularity/scalability features. Thorough evaluation will highlight modernization opportunities and lead the way ahead for the CM transformation effort.

Transformation Effort: Transformation strategies will enhance modern key management systems and maximize machine-to-machine interfaces to achieve network-centric operations. Revolutionary cryptographic modernization application to end-unit development will result in an inventory that robustly secures and enables network-centric warfare, whose operation is transparent to the user, is re-configurable and interoperates with Joint and Coalition partners for maximum warfighting effectiveness.

This project is in Budget Activity 07, Operation System Development, because it addresses the development and transition of information security, protection, and defensive capabilities and technologies.

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

|  | <u>FY 2004</u>                                | <u>FY 2005</u> | <u>FY 2006</u> | <u>FY 2007</u>             |
|--|---|----------------|----------------|----------------------------|
| (U) Continue KI-22 (KS-60) Cryptographic Modernization analysis and development of replacement | 8.990   | 22.952         | 24.300         | 12.700                     |
| Project 5100   | R-1 Shopping List - Item No. 171-20 of 171-31 |                |                | Exhibit R-2a (PE 0303140F) |

## UNCLASSIFIED

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

DATE

February 2005

| BUDGET ACTIVITY                   |   |         |          |          | PE NUMBER AND TITLE                           |          |          | PROJECT NUMBER AND TITLE         |          |            |            |
|-----------------------------------|---|---------|----------|----------|---|----------|----------|----------------------------------|----------|------------|------------|
| 07 Operational System Development |   |         |          |          | 0303140F Information Systems Security Program |          |          | 5100 Cryptographic Modernization |          |            |            |
| (U)                               | Continue KG-3X Cryptographic Modernization analysis and development of replacement *  |         |          |          | 0.000   |          | 1.872    | 21.500                           | 7.800    |            |            |
| (U)                               | Continue IFF Cryptographic Modernization analysis and development of replacement  |         |          |          | 4.970   |          | 16.572   | 8.833                            | 3.600    |            |            |
| (U)                               | Cancelled CTIC/CDH Cryptographic Modernization analysis and development of replacement  |         |          |          | 0.000   |          | 0.000    | 0.000                            | 0.000    |            |            |
| (U)                               | Initiate/complete CI-13 Cryptographic Modernization analysis and development of replacement   |         |          |          | 0.000   |          | 0.000    | 2.050                            | 19.203   |            |            |
| (U)                               | Continue Studies and Analyses   |         |          |          | 5.028   |          | 15.862   | 7.079                            | 5.665    |            |            |
| (U)                               | Continue Space Cryptographic Modernization analyses and development of replacements   |         |          |          | 0.986   |          | 11.687   | 33.550                           | 75.723   |            |            |
| (U)                               | Initiate KOV-20 Cryptographic Modernization analysis and development  |         |          |          | 0.000   |          | 0.000    | 0.000                            | 4.000    |            |            |
| (U)                               | Initiate KM Network Crypto analysis and development   |         |          |          | 0.000   |          | 0.000    | 0.000                            | 2.000    |            |            |
| (U)                               | Initiate KM Network Equipment Modernization analyses and development  |         |          |          | 0.000   |          | 0.000    | 0.000                            | 4.000    |            |            |
| (U)                               | Initiate Wireless Cryptographic Modernization analysis and development  |         |          |          | 0.000   |          | 0.000    | 0.000                            | 6.764    |            |            |
| (U)                               | Initiate KEESEE Cryptographic Modernization analysis and development  |         |          |          | 0.000   |          | 0.000    | 4.557                            | 5.000    |            |            |
| (U)                               | Initiate Advanced Cryptographic Modernization analysis and development  |         |          |          | 0.000   |          | 0.000    | 0.000                            | 10.915   |            |            |
| (U)                               | Initiate High Speed Optical Crypto analysis and development   |         |          |          | 0.000   |          | 0.000    | 0.000                            | 8.304    |            |            |
| (U)                               | Transferred to National Security Agency (NSA) for OSD-directed Trusted Foundry Program  |         |          |          | 9.000   |          | 1.000    | 0.000                            | 0.000    |            |            |
| (U)                               | NOTE: NSA contributes funds to the AF CM Project. In FY04 NSA funds alone were used for the KG-3X.                                      |         |          |          |   |          |          |                                  |          |            |            |
| (U)                               | Total Cost  |         |          |          | 28.974  |          | 69.945   | 101.869                          | 165.674  |            |            |
| (U)                               | C. Other Program Funding Summary (\$ in Millions)   |         |          |          |   |          |          |                                  |          |            |            |
|                                   |   | FY 2004 | FY 2005  | FY 2006  | FY 2007                                       | FY 2008  | FY 2009  | FY 2010                          | FY 2011  | Cost to    | Total Cost |
|                                   |   | Actual  | Estimate | Estimate | Estimate                                      | Estimate | Estimate | Estimate                         | Estimate | Complete   |            |
| (U)                               | AF Other Procurement PE 0303140F  | 0.000   | 0.000    | 4.350    | 80.426  | 113.818  | 155.766  | 197.080                          | 257.829  | Continuing | TBD        |
| (U)                               | D. Acquisition Strategy   |         |          |          |   |          |          |                                  |          |            |            |
|                                   | All major contracts within this project are awarded after full and open competition utilizing evolutionary and incremental development. |         |          |          |   |          |          |                                  |          |            |            |

## UNCLASSIFIED

| Exhibit R-3, RDT&E Project Cost Analysis   |                              |                                      |                                      |                 |                          |   |                          |                 |                          |                 |                          | DATE<br>February 2005  |            |                                |
|--|------------------------------|--------------------------------------|--------------------------------------|-----------------|--------------------------|---|--------------------------|-----------------|--------------------------|-----------------|--------------------------|--|------------|--------------------------------|
| BUDGET ACTIVITY<br>07 Operational System Development                                       |                              |                                      |                                      |                 |                          | PE NUMBER AND TITLE<br>0303140F Information Systems<br>Security Program |                          |                 |                          |                 |                          | PROJECT NUMBER AND TITLE<br>5100 Cryptographic Modernization |            |                                |
| (U) Cost Categories<br>(Tailor to WBS, or System/Item<br>Requirements)<br>(\$ in Millions) | Contract<br>Method &<br>Type | Performing<br>Activity &<br>Location | Total<br>Prior to FY<br>2004<br>Cost | FY 2004<br>Cost | FY 2004<br>Award<br>Date | FY 2005<br>Cost   | FY 2005<br>Award<br>Date | FY 2006<br>Cost | FY 2006<br>Award<br>Date | FY 2007<br>Cost | FY 2007<br>Award<br>Date | Cost to<br>Complete  | Total Cost | Target<br>Value of<br>Contract |
| (U) Product Development  |                              |                                      |                                      |                 |                          |   |                          |                 |                          |                 |                          |  |            |                                |
| KG-3X  | MIPR                         | ESC/NDM,<br>Hanscom<br>AFB, MA       | 0.000                                | 0.000           | Jan-05                   | 1.872   | Jan-05                   | 21.500          |                          | 7.800           |                          | 0.000  | 31.172     | 25.300                         |
| IFF  | MIPR                         | ESC/DIW,<br>Lackland<br>AFB, TX      | 0.000                                | 4.970           | Apr-05                   | 16.572  | Apr-05                   | 8.833           |                          | 3.600           |                          | Continuing   | TBD        | TBD                            |
| KI-22 (KS-60)  | MIPR                         | OO-ALC/LM<br>, Hill AFB,<br>UT       | 0.000                                | 8.990           | Jun-05                   | 22.952  | Jun-05                   | 24.300          |                          | 12.700          |                          | 0.000  | 68.942     | 76.458                         |
| Studies and Analyses   | In-house                     | CPSG,<br>Lackland<br>AFB, TX         | 0.000                                | 5.028           | Apr-05                   | 15.862  | Apr-05                   | 7.079           |                          | 5.665           |                          | Continuing   | TBD        | TBD                            |
| Space  | In-house                     | CPSG,<br>Lackland<br>AFB, TX         | 0.000                                | 0.986           | Feb-05                   | 11.687  | Feb-05                   | 33.550          |                          | 75.723          |                          | Continuing   | TBD        | TBD                            |
| KOV-20   | TBD                          |                                      | 0.000                                | 0.000           |                          | 0.000   |                          | 0.000           |                          | 4.000           |                          | Continuing   | TBD        | TBD                            |
| CI-13  | TBD                          |                                      | 0.000                                | 0.000           |                          | 0.000   |                          | 2.050           |                          | 19.203          |                          | 0.000  | 21.253     | 19.000                         |
| Type 1 KMI Equipment   | TBD                          |                                      | 0.000                                | 0.000           |                          | 0.000   |                          | 0.000           |                          | 4.000           |                          | Continuing   | TBD        | TBD                            |
| KMI to Crypto Network Interface  | TBD                          |                                      | 0.000                                | 0.000           |                          | 0.000   |                          | 0.000           |                          | 2.000           |                          | Continuing   | TBD        | TBD                            |
| KEESEE   | TBD                          |                                      | 0.000                                | 0.000           |                          | 0.000   |                          | 4.557           |                          | 5.000           |                          | Continuing   | TBD        | TBD                            |
| Advanced Crypto  | TBD                          |                                      | 0.000                                | 0.000           |                          | 0.000   |                          | 0.000           |                          | 10.915          |                          | Continuing   | TBD        | TBD                            |
| Laser Crypto   | TBD                          |                                      | 0.000                                | 0.000           |                          | 0.000   |                          | 0.000           |                          | 8.304           |                          | Continuing   | TBD        | TBD                            |
| Wireless Crypto  | TBD                          |                                      | 0.000                                | 0.000           |                          | 0.000   |                          | 0.000           |                          | 6.764           |                          | Continuing   | TBD        | TBD                            |
| Trusted Foundry  | MIPR                         | NSA, Fort<br>Meade, MD               | 0.000                                | 9.000           |                          | 1.000   |                          | 0.000           |                          | 0.000           |                          | 0.000  | 10.000     | 9.000                          |
| Subtotal Product Development   |                              |                                      | 0.000                                | 28.974          |                          | 69.945  |                          | 101.869         |                          | 165.674         |                          | Continuing   | TBD        | TBD                            |
| Remarks:   |                              |                                      |                                      |                 |                          |   |                          |                 |                          |                 |                          |  |            |                                |
| (U) Total Cost   |                              |                                      | 0.000                                | 28.974          |                          | 69.945  |                          | 101.869         |                          | 165.674         |                          | Continuing   | TBD        | TBD                            |

## Exhibit R-4, RDT&amp;E Schedule Profile

DATE

February 2005

BUDGET ACTIVITY

07 Operational System Development

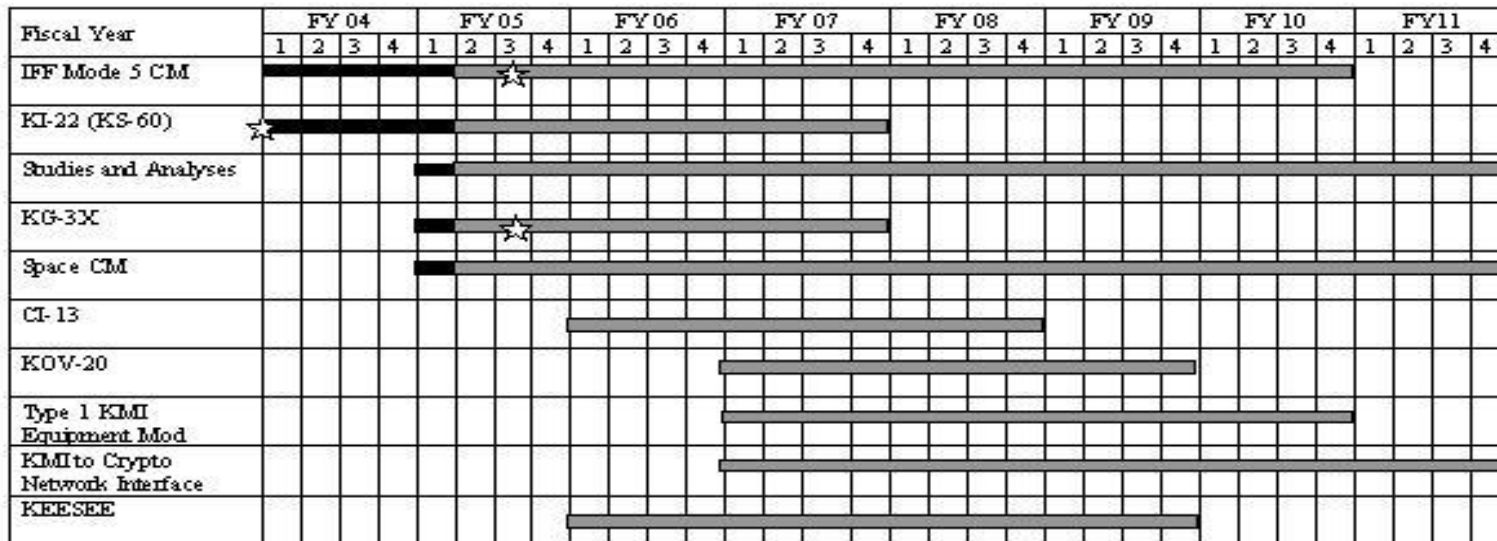
PE NUMBER AND TITLE

0303140F Information Systems  
Security Program

PROJECT NUMBER AND TITLE

5100 Cryptographic Modernization

# Exhibit R-4: BPAC 5100 Cryptographic Modernization (p 1 of 2)



Major Event or Milestone



Planned Ongoing Activity



Ongoing Activity that is Complete



Completed Event



Planned Task(s)

## Exhibit R-4, RDT&amp;E Schedule Profile

DATE

February 2005

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0303140F Information Systems  
Security Program

PROJECT NUMBER AND TITLE

5100 Cryptographic Modernization

# Exhibit R-4: BPAC 5100 Cryptographic Modernization (p 2 of 2)

| Fiscal Year     | FY 04 |   |   |   | FY 05 |   |   |   | FY 06 |   |   |   | FY 07 |   |   |   | FY 08 |   |   |   | FY 09 |   |   |   | FY 10 |   |   |   | FY11 |  |  |  |
|-----------------|-------|---|---|---|-------|---|---|---|-------|---|---|---|-------|---|---|---|-------|---|---|---|-------|---|---|---|-------|---|---|---|------|--|--|--|
|                 | 1     | 2 | 3 | 4 | 1     | 2 | 3 | 4 | 1     | 2 | 3 | 4 | 1     | 2 | 3 | 4 | 1     | 2 | 3 | 4 | 1     | 2 | 3 | 4 | 1     | 2 | 3 | 4 |      |  |  |  |
| Advanced Crypto |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |      |  |  |  |
| Laser Crypto    |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |      |  |  |  |
| Wireless Crypto |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |      |  |  |  |



Major Event or Milestone



Planned Ongoing Activity



Ongoing Activity that is Complete



Completed Event



Planned Task(s)

## UNCLASSIFIED

## Exhibit R-4a, RDT&amp;E Schedule Detail

DATE

February 2005

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0303140F Information Systems  
Security Program

PROJECT NUMBER AND TITLE

5100 Cryptographic Modernization

(U) Schedule ProfileFY 2004FY 2005FY 2006FY 2007

(U) Continue KG-3X Cryptographic Modernization

1-4Q

1-4Q

1-4Q

(U) Continue IFF Mode 5 Cryptographic Modernization

1-4Q

1-4Q

1-4Q

1-4Q

(U) Continue KI-22 (KS-60) Cryptographic Modernization

1-4Q

1-4Q

1-4Q

1-4Q

(U) Continue Studies and Analyses

1-4Q

1-4Q

1-4Q

(U) Continue Space Cryptographic Modernization

1-4Q

1-4Q

1-4Q

(U) Initiate Cryptographic Modernization of KOV-20 Box

1-4Q

(U) Initiate CI-13 Cryptographic Modernization

1-4Q

1-4Q

(U) Initiate Type 1 KMI Equipment Modernization

1-4Q

(U) Initiate KMI to Crypto Network Interface

1-4Q

(U) Initiate KEESEE Cryptographic Modernization

1-4Q

1-4Q

(U) Initiate Advanced Crypto

1-4Q

(U) Initiate Laser Crypto

1-4Q

(U) Initiate Wireless Crypto

1-4Q



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

DATE

February 2005

## BUDGET ACTIVITY

07 Operational System Development

## PE NUMBER AND TITLE

0303140F Information Systems  
Security Program

## PROJECT NUMBER AND TITLE

7820 Computer Security RDT&E:  
Firestarter

| Cost (\$ in Millions)                        | FY 2004<br>Actual | FY 2005<br>Estimate | FY 2006<br>Estimate | FY 2007<br>Estimate | FY 2008<br>Estimate | FY 2009<br>Estimate | FY 2010<br>Estimate | FY 2011<br>Estimate | Cost to<br>Complete | Total |
|--|-------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|-------|
| 7820 Computer Security RDT&E:<br>Firestarter | 7.813             | 6.455               | 4.103               | 5.738               | 6.043               | 7.363               | 7.530               | 7.659               | Continuing          | TBD   |
| Quantity of RDT&E Articles                   | 0                 | 0                   | 0                   | 0                   | 0                   | 0                   | 0                   | 0                   |                     |       |

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

This program directs the Research & Development (R&D) of Information Protect technology/tools to provide the capability to defend USAF Command, Control, Communications, Computer, and Intelligence (C4I) Systems from Information Warfare (IW) Cyber attacks; and to ensure recovery and self healing from attacks. As the USAF single manager for Information Assurance R&D, this project directs C4I system Information Protect R&D with emphasis on information/computer/network security, damage assessment and recovery, and dynamic security policy enforcement. The asymmetrical threat of cyber terrorism against our homeland and deployed networks has the potential to affect the commander's ability to fight and win because of his dependence upon the availability, timeliness, and integrity of information on our network centric C4I systems. The requirement for rapid access to vast quantities of information to support fast moving and often time-critical military operations has demanded increasing reliance on advanced information systems and coalition connectivity. The susceptibilities inherent in such reliance on advanced information systems and coalition connectivity has heightened the awareness that the Global Information Grid (GIG) must be protected against attack in order to provide the Commander with Global Information Exchange (GIE).

Emphasis is therefore placed on R&D areas that provide deterrence of attack through cyberspace surveillance, tactical indications & warning (I&W), intrusion detection, correlation of attack indicators, decision support, recovery, self healing and active response. Since adversaries may gain access to critical AF information systems through a variety of means, this technology will provide the capability of collecting, integrating, and displaying threat, vulnerability, and situational awareness and prevention, indicating an attack is about to take place and/or is taking place. Current Air Force systems such as the Combat Information Transport Systems (CITS), Theater Deployed Communications (TDC), and Information Warfare Planning Capability (IWPC) leverage the technology from this project to meet their information protection needs and planning requirements. Additionally, this project utilizes information assurance technology investments by the Defense Advanced Research Projects Agency (DARPA) and the Advanced Research and Development Activity (ARDA) as a jump-start for providing a solution to Air Force requirements and cooperates with Defense Information Systems Agency (DISA) and other Services/Agencies to ensure Information Assurance/Computer Network Defense (IA/CND) Government off-the-shelf requirements are being met.

This program is in Budget Activity 7, Operational System Development, because it addresses the development and transition of information security, protection, and defensive capabilities and technologies.

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

|  | <u>FY 2004</u> | <u>FY 2005</u> | <u>FY 2006</u> | <u>FY 2007</u> |
|--|----------------|----------------|----------------|----------------|
| (U) Continue development of technology for self-healing network systems (to include automated system recovery) | 0.288          | 0.304          | 0.463          | 0.625          |
| (U) Continue development of information attack correlation methodologies                                       | 0.576          | 0.770          | 0.606          | 0.663          |
| (U) Continue development of methodologies for commercial software evaluation and steganography detection       | 0.283          | 0.084          | 0.126          | 0.190          |

## UNCLASSIFIED

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

DATE

February 2005

| BUDGET ACTIVITY  | PE NUMBER AND TITLE                                  | PROJECT NUMBER AND TITLE                             |       |       |  |
|--|--|--|-------|-------|--|
| <b>07 Operational System Development</b>   | <b>0303140F Information Systems Security Program</b> | <b>7820 Computer Security RDT&amp;E: Firestarter</b> |       |       |  |
| (U) Continue development of secure agent frameworks for Enterprise Defense to support protection of the warfighter C4ISR systems                 | 0.893  | 0.292  | 0.315 | 0.545 |  |
| (U) Continue effort to transition DARPA information assurance (IA) technology into AF Information Protection, Detection, & Response architecture | 0.443  | 0.309  | 0.258 | 0.451 |  |
| (U) Continue effort to develop metrics for reliable information assurance (IA) measurement and testing   | 0.187  | 0.156  | 0.140 | 0.161 |  |
| (U) Continue development of secure interoperable distributed agent computing (partial Congressional Add)   | 2.676  | 2.760  | 0.514 | 0.503 |  |
| (U) Completed effort to evaluate biometric systems in conjunction with wired and wireless IA network applications                                | 0.195  | 0.000  | 0.000 | 0.000 |  |
| (U) Continue development of cyber forensic tools and methodologies   | 0.426  | 0.323  | 0.282 | 0.410 |  |
| (U) Continue effort to provide active response and dynamic policy enforcement to computer/network attack   | 0.424  | 0.409  | 0.328 | 0.489 |  |
| (U) Continue effort to provide dynamic, cost effective, risk mitigation information assurance techniques for wireless terminals and networks     | 0.406  | 0.320  | 0.270 | 0.351 |  |
| (U) Continue effort to provide IA/Cyber modeling and simulation for mission impact assessment and dynamic planning                               | 0.388  | 0.271  | 0.215 | 0.272 |  |
| (U) Continue effort to provide secure coalition IA data management, collaboration, and visualization   | 0.423  | 0.345  | 0.331 | 0.392 |  |
| (U) Continue effort to provide Internet Protocol (IP) Telephony (Voice Over IP) security tools   | 0.205  | 0.112  | 0.055 | 0.273 |  |
| (U) Initiate IPv6 Risk Mitigation  |  |  | 0.200 | 0.207 |  |
| (U) Initiate Cyber Security Bots   |  |  |       | 0.206 |  |
| (U) Total Cost   | 7.813  | 6.455  | 4.103 | 5.738 |  |

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

|                | <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>FY 2010</u>  | <u>FY 2011</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 |                |                 |                 |                 |                 |                 |                 |                 |                 |                   |
| N/A            |                |                 |                 |                 |                 |                 |                 |                 |                 |                   |

(U) **D. Acquisition Strategy**

All major contracts within this project are awarded after full and open competition utilizing evolutionary capability and incremental development.

## UNCLASSIFIED

## Exhibit R-3, RDT&amp;E Project Cost Analysis

DATE

February 2005

## BUDGET ACTIVITY

07 Operational System Development

## PE NUMBER AND TITLE

0303140F Information Systems  
Security Program

## PROJECT NUMBER AND TITLE

7820 Computer Security RDT&E:  
Firestarter

| (U) Cost Categories<br>(Tailor to WBS, or System/Item<br>Requirements)<br>(\$ in Millions) | <u>Contract<br/>Method &amp;<br/>Type</u>  | <u>Performing<br/>Activity &amp;<br/>Location</u> | <u>Total<br/>Prior to FY<br/>2004<br/>Cost</u> | <u>FY 2004<br/>Cost</u> | <u>FY 2004<br/>Award<br/>Date</u> | <u>FY 2005<br/>Cost</u> | <u>FY 2005<br/>Award<br/>Date</u> | <u>FY 2006<br/>Cost</u> | <u>FY 2006<br/>Award<br/>Date</u> | <u>FY 2007<br/>Cost</u> | <u>FY 2007<br/>Award<br/>Date</u> | <u>Cost to<br/>Complete</u> | <u>Total Cost</u> | <u>Target<br/>Value of<br/>Contract</u> |
|--|--|---|--|-------------------------|-----------------------------------|-------------------------|-----------------------------------|-------------------------|-----------------------------------|-------------------------|-----------------------------------|-----------------------------|-------------------|---|
| (U) <u>Product Development</u><br>FFRDC (MITRE)  | CPFF   | Multiple<br>Locations                             | 5.455  | 0.471                   | Oct-04                            | 0.271                   | Oct-05                            | 0.308                   | Oct-06                            | 0.332                   | Oct-07                            | Continuing                  | TBD               | TBD                                     |
| Multiple Contractors   | CPFF   | Multiple<br>Locations                             | 8.224  | 6.556                   |                                   | 5.609                   |                                   | 3.234                   |                                   | 4.682                   |                                   | Continuing                  | TBD               | TBD                                     |
| Multiple Universities  | CPFF   | Multiple<br>Locations                             | 0.391  | 0.786                   |                                   | 0.575                   |                                   | 0.561                   |                                   | 0.724                   |                                   | Continuing                  | TBD               | TBD                                     |
| Subtotal Product Development   |  |   | 14.070   | 7.813                   |                                   | 6.455                   |                                   | 4.103                   |                                   | 5.738                   |                                   | Continuing                  | TBD               | TBD                                     |
| Remarks:   | Multiple contractors & multiple universities reflect on-going efforts with over a dozen contractors & universities. Each has a different contract date depending on when that particular contract was awarded. |   |  |                         |                                   |                         |                                   |                         |                                   |                         |                                   |                             |                   |   |
| (U) Total Cost   |  |   | 14.070   | 7.813                   |                                   | 6.455                   |                                   | 4.103                   |                                   | 5.738                   |                                   | Continuing                  | TBD               | TBD                                     |

## Exhibit R-4, RDT&amp;E Schedule Profile

DATE

February 2005

BUDGET ACTIVITY

07 Operational System Development

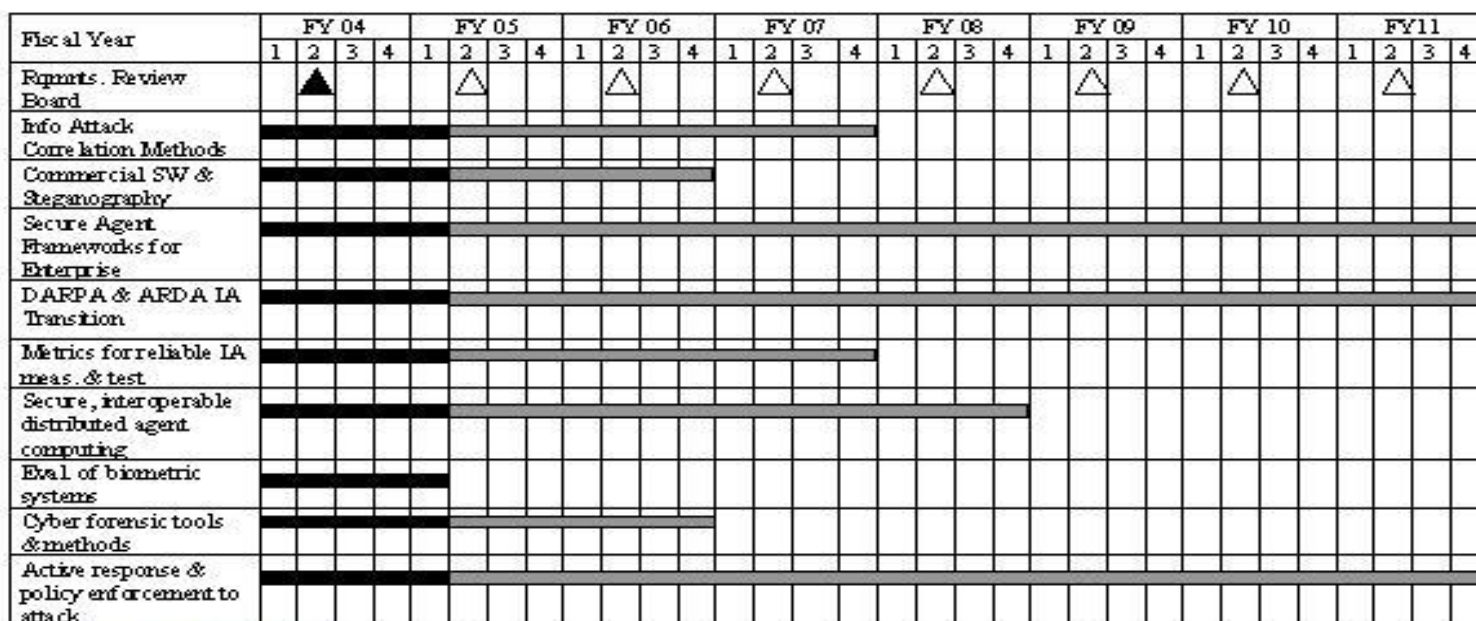
PE NUMBER AND TITLE

0303140F Information Systems  
Security Program

PROJECT NUMBER AND TITLE

7820 Computer Security RDT&E:  
Firestarter

## Exhibit R-4: BPAC 7820, Firestarter (p 1 of 2)



☆ Major Event or Milestone

Planned Ongoing Activity

Ongoing Activity that is Complete

▲ Completed Event

△ Planned Task(s)

## Exhibit R-4, RDT&amp;E Schedule Profile

DATE

February 2005

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0303140F Information Systems  
Security Program

PROJECT NUMBER AND TITLE

7820 Computer Security RDT&E:  
Firestarter

## Exhibit R-4: BPAC 7820, Firestarter (p 2 of 2)

| Fiscal Year                    | FY 04 |   |   |   | FY 05 |   |   |   | FY 06 |   |   |   | FY 07 |   |   |   | FY 08 |   |   |   | FY 09 |   |   |   | FY 10 |   |   |   | FY 11 |  |  |  |
|--------------------------------|-------|---|---|---|-------|---|---|---|-------|---|---|---|-------|---|---|---|-------|---|---|---|-------|---|---|---|-------|---|---|---|-------|--|--|--|
|                                | 1     | 2 | 3 | 4 | 1     | 2 | 3 | 4 | 1     | 2 | 3 | 4 | 1     | 2 | 3 | 4 | 1     | 2 | 3 | 4 | 1     | 2 | 3 | 4 | 1     | 2 | 3 | 4 |       |  |  |  |
| Risk Mitigation for wireless   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |  |  |  |
| IA/Cyber Modeling & Simulation |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |  |  |  |
| Secure Coalition               |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |  |  |  |
| IP Telephony                   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |  |  |  |
| IPv6 Risk Mitigation           |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |  |  |  |
| Cyber Security Bots            |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |  |  |  |

☆ Major Event or Milestone

Planned Ongoing Activity

Ongoing Activity that is Complete

▲ Completed Event

△ Planned Task(s)

## UNCLASSIFIED

## Exhibit R-4a, RDT&amp;E Schedule Detail

DATE

February 2005

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0303140F Information Systems  
Security Program

PROJECT NUMBER AND TITLE

7820 Computer Security RDT&E:  
Firestarter(U) **Schedule Profile**

|   | <u>FY 2004</u> | <u>FY 2005</u> | <u>FY 2006</u> | <u>FY 2007</u> |
|---|----------------|----------------|----------------|----------------|
| (U) Requirements Review Boards  | 2Q             | 2Q             | 2Q             | 2Q             |
| (U) Continue development of self-healing network systems  | 1-4Q           | 1-4Q           | 1-4Q           | 1-4Q           |
| (U) Continue information attack correlation methodologies   | 1-4Q           | 1-4Q           | 1-4Q           | 1-4Q           |
| (U) Continue development of methodologies for commercial software evaluation and steganography    | 1-4Q           | 1-4Q           | 1-4Q           |                |
| (U) Continue development of secure agent frameworks for Enterprise Defense                        | 1-4Q           | 1-4Q           | 1-4Q           | 1-4Q           |
| (U) Continue DARPA and ARDA information assurance transition                                      | 1-4Q           | 1-4Q           | 1-4Q           | 1-4Q           |
| (U) Continue to develop metrics for reliable IA measurement and testing                           | 1-4Q           | 1-4Q           | 1-4Q           | 1-4Q           |
| (U) Continue secure interoperable distributed agent computing (partial Congressional add)         | 1-4Q           | 1-4Q           | 1-4Q           | 1-4Q           |
| (U) Completed the evaluation of biometric systems   | 1-4Q           |                |                |                |
| (U) Continue to develop cyber forensic tools and methodologies                                    | 1-4Q           | 1-4Q           | 1-4Q           |                |
| (U) Continue to develop active response and dynamic policy enforcement to computer/network attack | 1-4Q           | 1-4Q           | 1-4Q           | 1-4Q           |
| (U) Continue risk mitigation IA technology for wireless terminals and networks                    | 1-4Q           | 1-4Q           | 1-4Q           | 1-4Q           |
| (U) Continue IA/Cyber modeling and simulation   | 1-4Q           | 1-4Q           | 1-4Q           | 1-4Q           |
| (U) Continue secure coalition IA data management collaboration and visualization                  | 1-4Q           | 1-4Q           | 1-4Q           | 1-4Q           |
| (U) Continue Internet Protocol (IP) Telephony (Voice Over IP) security tools                      | 1-4Q           | 1-4Q           | 1-4Q           | 1-4Q           |
| (U) Initiate IPv6 Risk Mitigation   |                |                | 1-4Q           | 1-4Q           |
| (U) Initiate Cyber Security Bots  |                |                |                | 1-4Q           |