| Exhibit R-2, RDT&E Budget Item Justification | Date: February 2008 |
|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>RDT&E, Defense-Wide/07 | R-1 ITEM NOMENCLATURE<br>Defense Info Infrastructure Engineering and Integration/PE 0302019K |

| Cost ($ in millions) | FY 2007 | FY 2008 | FY 2009 | FY 2010 | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|---|---|---|---|
| Total Program Element | 35.790 | 5.229 | 16.054 | 10.548 | 12.426 | 9.470 | 9.160 |
| Global Information Grid Systems Engineering & Support/T62 | 4.320 | 2.621 | 2.776 | 2.848 | 2.826 | 2.996 | 2.692 |
| Modeling and Simulation/E65 | 2.596 | 2.608 | 6.278 | 7.700 | 9.600 | 6.474 | 6.468 |
| UHF SATCOM Integrated Waveform/KCD | 28.874* | 0.000 | 7.000 | 0.000 | 0.000 | 0.000 | 0.000 |

* FY 2007 funding total includes $28 million received in GWOT supplemental.

**A. Mission Description and Budget Item Justification**: This program element funds efforts involving the development and fielding of Global Information Grid (GIG) Enterprise Services, including engineering support for the resolution of critical interoperability and integration issues, and assessment of C4I initiatives that will ensure compatibility, interoperability, and technical integration.

Global Information Grid (GIG) Systems Engineering and Support, Project T62, involves the definition and implementation of various aspects of evolving the GIG. It will strengthen critical GIG foundation technologies and programs through the application of precise, short-term, technical, and engineering and integration expertise.

Modeling and Simulation, Project E65, provides architecture, systems engineering, and modeling and simulation functions for DISA and its customers, ensuring integrated capabilities to fulfill warfighter mission requirements. Specifically, it performs a broad spectrum of activities for the DoD communications planning and investment strategy, to include: application assessments; contingency planning; network capacity planning and diagnostics; evaluation of horizontal (cross-cutting) operational and system architectures; and systems-level modeling and simulation. Modeling and Simulation develops across-theater information awareness for Combatant Commands through application solutions for integrated networks, to include DoD’s missions in Iraq and Afghanistan and the Defense Information Systems Network (DISN), by: (1) supporting the development and consistency of DoD’s GIG architectures and ensuring that critical GIG programs are consistent with them and with each other; (2) developing standardized DISA systems engineering and integration processes to improve systems integration across DISA for all DISA-developed communication systems; and (3) providing the underlying modeling and simulation and analytical support for end-to-end DISA and DoD systems engineering and assessment. These modeling and simulation operations are to provide DoD decision-makers, from the Office of the Secretary of Defense (OSD) level to the warfighter, with services and a suite of tools capable of identifying key points

| Exhibit R-2, RDT&E Budget Item Justification | Date: February 2008 |
|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>RDT&E, Defense-Wide/07 | R-1 ITEM NOMENCLATURE<br>Defense Info Infrastructure Engineering and Integration/PE 0302019K |

of impact on DoD command and control information systems and recommending tradeoffs within the GIG configuration with regard to prioritized performance, availability, and security.

The Ultra High Frequency (UHF) Satellite Communications (SATCOM) Integrated Waveform (IW) System, Project KCD, is developed by DISA as an improvement to the present UHF SATCOM waveforms. UHF SATCOM provides the US Department of Defense (DoD) and other US Government departments and agencies with critical beyond line-of-sight communications for tactical and special forces operations. UHF SATCOM is the only commercial or military system that enables users to operate communications on-the-move and under all weather conditions and cover. The present UHF SATCOM constellation is aging and the replacement system, the Mobile User Objective System (MUOS), will not provide initial operational capability (IOC) until FY 2010 and full operational capability (FOC) until FY 2014, at the earliest. The UHF SATCOM Integrated Waveform will more than double the UHF SATCOM capacity in accesses and data throughput. The majorities of fielded UHF SATCOM terminals are software programmable and can be upgraded to IW by updating the software in the field.

This program element is under Budget Activity 07 because it involves efforts supporting operational systems development.

**B. Program Change Summary:**

| | FY 2007 | FY 2008 | FY 2009 |
|---|---|---|---|
| FY 2008 President's Budget | 34.007 | 5.548 | 7.804 |
| FY 2009 President's Budget | 35.790 | 5.229 | 16.054 |
| Total Adjustments | 1.783 | -0.319 | +8.250 |

Change Summary Explanation:
FY 2007 change due to below threshold reprogramming for increased information assurance requirements.
FY 2008 change due to Congressional adjustments for economic assumption and contractor efficiencies.
FY 2009 change due to increased modeling and simulation efforts and expansion of UHF Satellite Communications Integrated Waveform System in accesses and data throughput.

| Exhibit R-2a, RDT&E Project Justification | | | | Date: February 2008 | | | |
|---|---|---|---|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>RDT&E, Defense-Wide/07 | | | PROJECT NAME AND NUMBER<br>Modeling & Simulation/E65 | | | | |
| Cost ($ in millions) | FY 2007 | FY 2008 | FY 2009 | FY 2010 | FY 2011 | FY 2012 | FY 2013 |
| Project Cost | 2.596 | 2.608 | 6.278 | 7.770 | 9.600 | 6.474 | 6.468 |

**A. Mission Description and Budget Item Justification**: This Modeling and Simulation project provides architecture, systems engineering and end-to-end analytical functions for DISA and its customers, ensuring integrated capabilities to fulfill warfighter mission requirements. Specifically, Modeling and Simulation performs a broad spectrum of activities for the DoD communications planning and investment strategy, to include: application assessments; contingency planning; network capacity planning and diagnostics; evaluation of horizontal (cross-cutting) operational and system architectures; setting character-oriented message standards; and systems-level modeling and simulation. Modeling and Simulation develops across-theater information awareness for Combatant Commands through application solutions for integrated networks, to include DoD's missions in Iraq and Afghanistan and the Defense Information Systems Network (DISN), by: (1) supporting the development and consistency of DoD's Global Information Grid (GIG) architectures and ensuring that critical GIG programs are consistent with them and with each other; (2) developing standardized DISA systems engineering and integration processes to improve systems integration across DISA for all DISA developed communication systems and services; and (3) providing the underlying modeling and simulation and analytical support for end-to-end DISA and DoD systems engineering and assessment. These operations are to provide DoD decision makers, from the OSD level to the warfighter, with services and a suite of tools capable of identifying key points of impact on DoD command and control information systems and recommending tradeoffs within the GIG configuration with regard to prioritized performance, availability, and security.

**B. Accomplishments/Planned Program**:

Modeling and Simulation -
FY 2008 - Funds Modeling and Simulation Applications to support DISN predictive modeling capacity planning, topology, and DISN Transport design. Incorporate Services models to provide End to End performance capacity to analyze the GIG performance. Provide performance analysis and technical recommendations for COCOMs network redesign and upgrades. Build and simulate GIG IP convergence model to predict network behavior for design and upgrade. Perform modeling and simulation to assist DISA and DoD programs and services in migration to IPv6 network.

FY 2009 – Funds are to build a model to validate the GIG architecture frame work. Provide performance measurement and

| Exhibit R-2a, RDT&E Project Justification | | | | Date: February 2008 | | | |
|---|---|---|---|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>RDT&E, Defense-Wide/07 | | | PROJECT NAME AND NUMBER<br>Modeling & Simulation/E65 | | | | |
| Cost ($ in millions) | FY 2007 | FY 2008 | FY 2009 | FY 2010 | FY 2011 | FY 2012 | FY 2013 |
| Project Cost | 2.596 | 2.608 | 6.278 | 7.770 | 9.600 | 6.474 | 6.468 |

instrumentation to DISA acquisition programs. Collaborate with Services to build and simulate the DoD Command and Control information systems and recommend tradeoffs within the GIG configuration with regard to prioritized performance, availability, and security. Perform/analyze and provide technical recommendations to improve performance of the tactical edge network within the GIG. Provide Modeling and DISN predictive modeling capability planning and topology design. Incorporate Services models to provide end-to-end performance analysis if the GIG. Provide performance analysis and technical recommendations for COCOMs network redesign, upgrades. Build and simulate GIG IP convergence model to predict network behavior, for design and upgrade. Perform modeling and simulation to assist DISA and DoD programs and services in migration to IPv6 network.

Additionally, funds pay for development of a model to validate and solve technical issues on the GIG. Support end-to-end systems engineering in performing Performance Analysis, Topology Design, Capacity Planning, Traffic Analysis and Modeling of the DISN IP/Transport layers. Modeling and design of the future optical mesh and leased extension topologies for the DISN. Modeling and network analysis support to GS2 for the transition of legacy DISN services and legacy transport onto the new DISN transport core. Modeling and analysis of the operational transport networks to identify, investigate, and develop solutions for network and routing anomalies. Provide analysis, design, and “what-if” modeling for moving the DISN Unclassified and Classified IP services to use of the DISN Core IP Layer. Provide analysis, design, and “what-if” modeling of the DISN Core IP Layer. Provide analysis and capacity planning support for the current NIPRNET/SIPRNET including the needs for Internet access points (IAPs). Provide an automated means for traffic insight for performance management and capacity planning; ensure collection, rapid processing, and useful statistics presentation. Establish capability to continue end-to-end traffic analysis with DISN Core. Costs are expected to increase significantly in FY09 and beyond due to increased M&S requirements in the replacement of ATM equipment.

| | FY 2007 | FY 2008 | FY 2009 |
|---|---|---|---|
| Subtotal Cost | 2.596 | 2.608 | 6.278 |

| Exhibit R-2a, RDT&E Project Justification | | | | Date: February 2008 | | | |
|---|---|---|---|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>RDT&E, Defense-Wide/07 | | | PROJECT NAME AND NUMBER<br>Modeling & Simulation/E65 | | | | |
| Cost ($ in millions) | FY 2007 | FY 2008 | FY 2009 | FY 2010 | FY 2011 | FY 2012 | FY 2013 |
| Project Cost | 2.596 | 2.608 | 6.278 | 7.770 | 9.600 | 6.474 | 6.468 |

**C. Other Program Funding Summary:**

| | FY 2007 | FY 2008 | FY 2009 | FY 2010 | FY 2011 | FY 2012 | FY 2013 | To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| O&M, DW | 7.168 | 7.640 | 21.388 | 22.205 | 20.395 | 20.663 | 23.064 | Cont'g | Cont'g |

**D. Acquisition Strategy**: Uses a number of contractors for modeling support with Booz Allen Hamilton, Inc., SRA, OPNET Technologies, SAIC, and Comptel being the main providers of these services. The level of support includes network topological model development; analysis using the topological models; capacity planning using the models; and, network redesign using the models. These companies are uniquely qualified to provide the necessary level of technical support and services to ensure DISA uses the leading edge communication technologies.

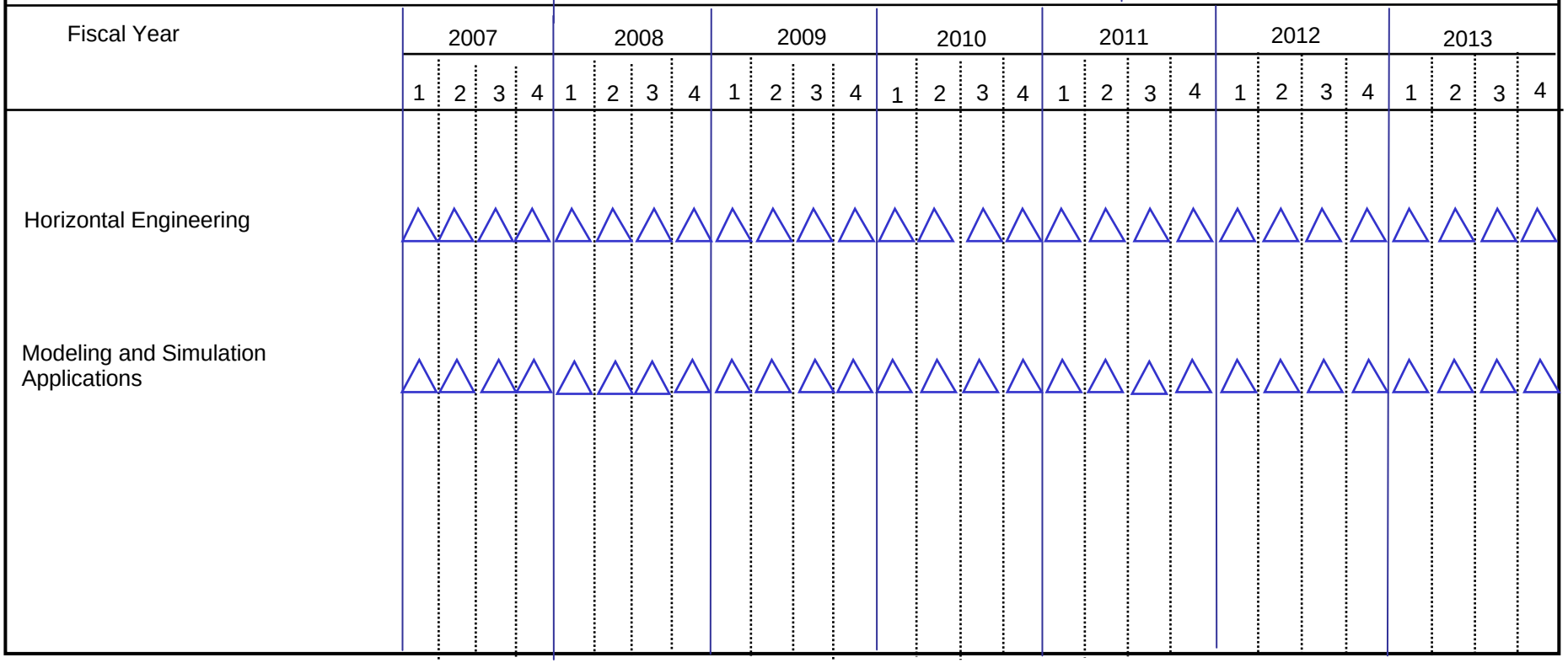
**E. Performance Metrics**:
Modeling and Simulation's systems engineering is measured by its impact on the DoD communications planning and investment strategy. The most significant criteria are total operational cost followed by installation cost. Additional criteria include application assessments; contingency planning; network capacity planning and diagnostics; system architecture evaluation; technical and operational assessments of emerging technologies; and systems-level modeling and simulation.

| Exhibit R-3 RDT&E Project Cost Analysis | | Date: February 2008 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>RDT&E, Defense-Wide/07 | PROGRAM ELEMENT<br>PE 0302019K | PROJECT NAME AND NUMBER<br>Modeling & Simulation/E65 |

| Cost Category | Contract Method & Type | Performing Activity & Location | Total PY Cost ($000) | FY07 Cost ($000) | FY07 Award Date | FY08 Cost ($000) | FY08 Award Date | FY09 Cost ($000) | FY09 Award Date | Cost to Complete ($000) | Total Cost ($000) | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Modeling and Simulation Systems Engineering and Integration | CPFF | Verizon/BBNT McLean, Va | 0.925 | 0.597 | 02/07 | 0.625 | 1/08 | 1.683 | 1/09 | Cont'g | Cont'g | 3.457 |
| Com modeling and simulation | CPFF | OPNET Tech, Inc. Bethesda, MD | 0.418 | 0.418 | 01/07 | 0.400 | 01/08 | 0.797 | 01/09 | Cont'g | Cont'g | 3.604 |
| | CPFF | SAIC | 0.875 | 0.558 | 01/07 | 0.540 | 01/08 | 0.972 | 01/09 | Cont'g | Cont'g | 2.845 |
| | CPFF/8A | Comptel | 0.900 | 0.478 | 01/07 | 0.403 | 01/08 | 0.972 | 01/09 | Cont'g | Cont'g | 2.653 |
| | FFP | Booz, Allen & Hamilton, McLean, VA | 0.801 | 0.286 | 03/07 | 0.250 | 3/08 | 0.954 | 03/09 | Cont'g | Cont'g | 2.091 |
| | FFP | SRA | 0.707 | 0.259 | 03/07 | 0.390 | 03/08 | 0.900 | 03/09 | Cont'g | Cont'g | 0.192 |
| TOTAL | | | 5.124 | 2.596 | | 2.608 | | 6.278 | | | | |

**Exhibit R-4, RDT&E Program Schedule Profile** | Date: February 2008

| Appropriation/Budget Activity | Program Element Number and Name | Project Number and Name |
|---|---|---|
| RDT&E, Defense-Wide, 07 | PE 0302019K, Defense Info Infrastructure Engineering and Integration | E65, Modeling & Simulation |



| Exhibit R-4a, RDT&E Program Schedule Detail | | DATE: February 2008 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>RDT&E, Defense-Wide/07 | PROGRAM ELEMENT NUMBER AND NAME<br>PE 0302019K/Defense Info Infrastructure Engineering and Integration | PROJECT NUMBER AND NAME<br>E65/Modeling and Simulation |

| Schedule Profile | FY 2007 | FY 2008 | FY 2009 | FY 2010 | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|---|---|---|---|
| Horizontal Engineering | 1-4Q | 1-4Q | 1-4Q | 1-4Q | 1-4Q | 1-4Q | 1-4Q |
| Modeling and Simulation Applications | 1-4Q | 1-4Q | 1-4Q | 1-4Q | 1-4Q | 1-4Q | 1-4Q |

| Exhibit R-2a, RDT&E Project Justification | | | Date: February 2008 | | | | |
|---|---|---|---|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>RDT&E, Defense-Wide/07 | | | PROJECT NAME AND NUMBER<br>UHF SATCOM Integrated Waveform/KCD | | | | |
| Cost ($ in millions) | FY 2007 | FY 2008 | FY 2009 | FY 2010 | FY 2011 | FY 2012 | FY 2013 |
| Project Cost | 28.874* | 0.000 | 7.000 | 0.000 | 0.000 | 0.000 | 0.000 |

* FY 2007 funding total includes $28 million in GWOT supplemental.

**A. Mission Description and Budget Item Justification:** The Ultra High Frequency (UHF) satellite communications (SATCOM) system provides the US Department of Defense (DoD) and other US Government departments and agencies critical beyond line-of-sight communications for tactical and special forces operations. UHF SATCOM is the only commercial or military system that enables users to operate communications on-the-move and under all weather conditions and cover. The present UHF SATCOM constellation is aging and the replacement system, the Mobile User Objective System (MUOS), will not provide initial operational capability (IOC) until 2010 and full operational capability (FOC) until 2014, at the earliest. The MUOS deployment is contingent on the Joint Tactical Radio System (JTRS) terminals being fielded across all services. Assuming that the MUOS and JTRS are deployed on time and all current UHF satellites continue to operate, the UHF SATCOM system is short on meeting present user needs. DISA developed the Integrated Waveform (IW) as an improvement on the present UHF SATCOM waveforms. IW implementation will more than double the UHF SATCOM capacity in accesses and data throughput. The majority of fielded UHF SATCOM terminals are software programmable and can be upgraded to IW by updating the software in the field. The Commander of US Central Command (CENTCOM) reports that for the present military operations in Iraq and Afghanistan, CENTCOM was provided additional UHF SATCOM channels from the PACOM and EUCOM apportionments.

**B. Accomplishments/Planned Program:**

| | FY 2007 | FY 2008 | FY 2009 |
|---|---|---|---|
| UHF SATCOM Integrated Waveform | | | |
| Subtotal Cost | 28.874 | 0.000 | 7.000 |

FY 2007 - Development of IW demand assignment capabilities allows preplanned or ad-hoc services to be activated and deactivated by user terminals using order wire messages. IW improves demand assigned service because the assignment is permitted across a larger pool of resources. IW is more efficient and will have more access resources available allowing users to receive a quicker response than with the current Demand Assigned Multiple Access (DAMA) services. Implementing a much simpler and easier to use service-on-demand will enable warfighters to maximize the advantages of the present UHF SATCOM system and, in addition, prepare the users for the MUOS which will also be a demand assignment system. Implementing the IW capabilities in the fielded software-programmable terminals will provide the warfighter:

| Exhibit R-2a, RDT&E Project Justification | | | Date: February 2008 | | | | |
|---|---|---|---|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>RDT&E, Defense-Wide/07 | | | PROJECT NAME AND NUMBER<br>UHF SATCOM Integrated Waveform/KCD | | | | |
| Cost ($ in millions) | FY 2007 | FY 2008 | FY 2009 | FY 2010 | FY 2011 | FY 2012 | FY 2013 |
| Project Cost | 28.874* | 0.000 | 7.000 | 0.000 | 0.000 | 0.000 | 0.000 |

- Substantially more system capacity;
- Demand assignment of preplanned services;
- Support ad-hoc services;
- Dynamic bandwidth allocation;
- Join The NET request (Informs a user to join a NET in progress); and
- Service-waiting notification (similar to call-waiting).

FY 2009 - Development of IW capabilities in PRC-148 and ARC-210 radios to realize a larger community of IW users. The approach for the PRC-148 and ARC-210 will include both Phases and will allow greater use of on orbit UFO resources.

**C. Other Program Funding Summary:** N/A

**D. Acquisition Strategy:**
Based on current military operations, Joint Staff and STRATCOM evaluated and recommended which fielded terminals should be IW upgraded. The Net-Centric Functional Configuration Board endorsed the recommendations and DISA took the lead of the software development for six types of deployed UHF SATCOM terminals. The terminal list includes: the PRC-117F developed by Harris Corporation; the PSC-5C, PSC-5D and ARC-231 developed by Raytheon Corporation; and the MD-1324 and RT-1828 developed by ViaSat Corporation. In addition, the software of the channel Control Terminal (CT), developed by General Dynamics, and the Satellite Access Control (SAC) system developed by the Navy, will be upgraded to IW. Fixed price contracts are being awarded for IW software development for the selected UHF SATCOM terminals. The software will be certified for waveform compliance and interoperability and then fielded. Software installation and operating instructions will be developed to assist the UHF SATCOM users with the software upgrades and operation of the terminals. Fixed price contracts will be awarded to Thales Communications, Inc. for PRC-148 and to Rockwell Collins for ARC-210 airborne radios.

**E. Performance Metrics:**
The system engineering for the IW waveform improvement has been completed and published in the latest revisions of information technology standards for UHF SATCOM. Integrated Waveform demonstrations using UHF SATCOM terminals have proven the performance improvement of IW, in terms of link and voice quality and capacity. The performance of the terminal software developed by the various vendors will be measured against the IW standards interoperability and

| Exhibit R-2a, RDT&E Project Justification | | | Date: February 2008 | | | | |
|---|---|---|---|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>RDT&E, Defense-Wide/07 | | | PROJECT NAME AND NUMBER<br>UHF SATCOM Integrated Waveform/KCD | | | | |
| Cost ($ in millions) | FY 2007 | FY 2008 | FY 2009 | FY 2010 | FY 2011 | FY 2012 | FY 2013 |
| Project Cost | 28.874* | 0.000 | 7.000 | 0.000 | 0.000 | 0.000 | 0.000 |

performance requirements. Standards compliance and interoperability testing will be performed by the Joint Interoperability Test Command (JITC) on each and every terminal type upgraded to IW.

**F. Major Performers:**

Harris Corporation, Rochester, NY. The Harris Corp. provides expertise in the development of software and firmware that will upgrade UHF SATCOM radio terminals to be IW capable.

Raytheon Corporation, Ft. Wayne, IN. Raytheon Corp. provides expertise in the development of software and firmware that will upgrade UHF SATCOM radio terminals to be IW capable.

ViaSat Corporation, Carlsbad, CA. ViaSat Corp. provides expertise in the development of software and firmware that will upgrade UHF SATCOM radio terminals to be IW capable.

General Dynamics, Scottsdale, AZ. General Dynamics provides expertise in the development of software and firmware that will upgrade UHF SATCOM Control Terminals to be IW capable.

Xenotran, Linthicum Heights, MD. Xenotran provides expertise in the development of software for the Integrated Broadcast Service.

Thales Communications, Inc, Clarksburg, MD. Thales Comm, Inc. provides expertise in the development of software and firmware that will upgrade UHF SATCOM radio terminals to be IW capable.

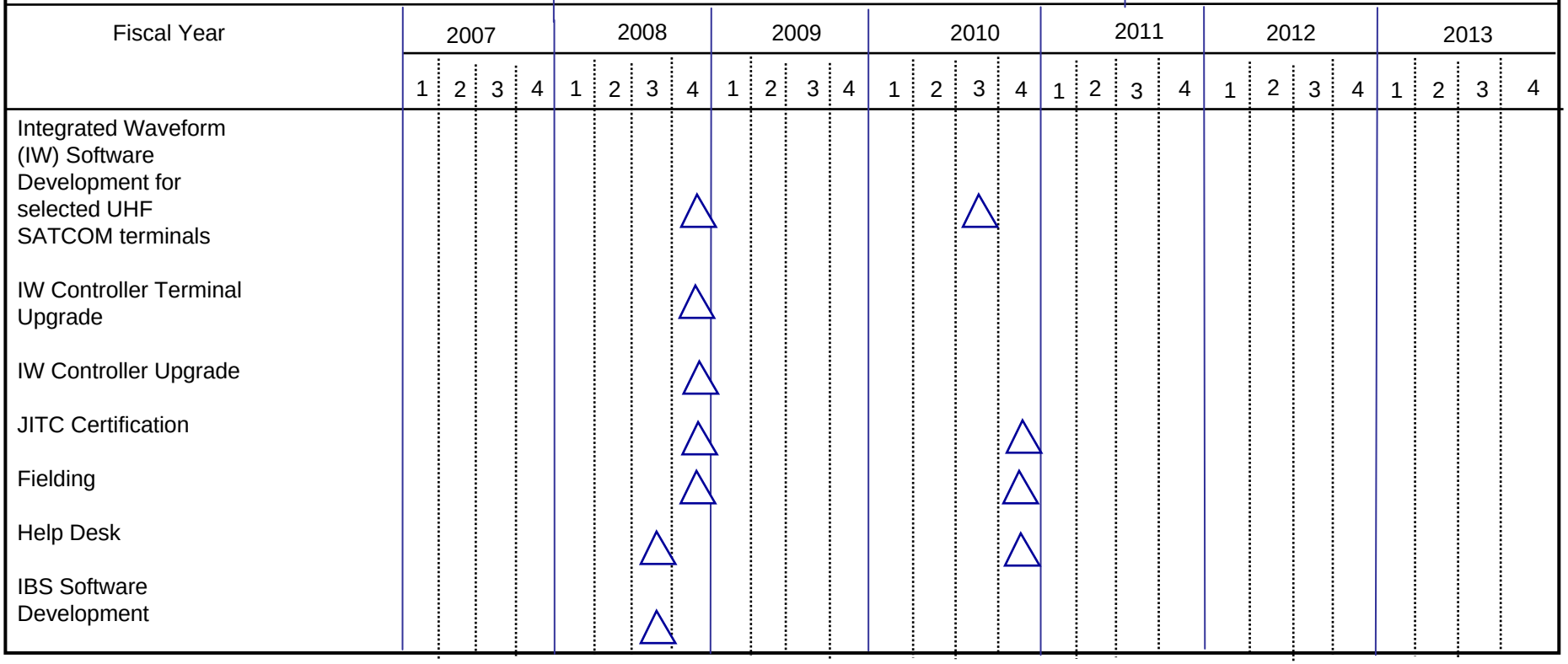
Rockwell Collins, Cedar Rapids, IA. Rockwell Collins provides expertise in the development of software and firmware that will upgrade airborne UHF SATCOM radio terminals to be IW capable.

| Exhibit R-3 RDT&E Cost Analysis | | Date: February 2008 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>RDT&E, Defense-Wide/07 | PROGRAM ELEMENT<br>PE 0302019K | PROJECT NAME AND NUMBER<br>UHF SATCOM Integrated Waveform/KCD |

| Cost Category | Contract Method & Type | Performing Activity & Location | Total PY Cost ($000) | FY07 Cost ($000) | FY07 Award Date | FY08 Cost ($000) | FY08 Award Date | FY09 Cost ($000) | FY09 Award Date | Cost to Complete ($000) | Total Cost ($000) | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Integrated Waveform software development for deployed legacy terminals | FPAF | Harris Corp Rochester, NY | 10.000 | 4.817 | 08/07 | 0.000 | N/A | 0.000 | N/A | 0.000 | 0.000 | 14.817 |
| | FPAF | Raytheon Corp Ft Wayne, IN | 6.000 | 6.674 | 08/07 | 0.000 | N/A | 0.000 | N/A | 0.000 | 0.000 | 12.674 |
| | FPAF | ViaSat Corp Carlsbad, CA | 0.000 | 1.547 | 08/07 | 0.000 | N/A | 0.000 | N/A | 0.000 | 0.000 | 1.547 |
| | FPAF | Thales Comm, Inc., Clarksburg, MD | 0.000 | 0.000 | N/A | 0.000 | N/A | 3.000 | TBD | 0.000 | 0.000 | 3.000 |
| | FPAF | Rockwell Collins, Cedar Rapids, IA | 0.000 | 0.000 | N/A | 0.000 | N/A | 3.000 | TBD | 0.000 | 0.000 | 3.000 |
| SCA compliant terminal software development | FPAF | Harris Corp Rochester, NY | 0.000 | 3.101 | 06/08 | 0.000 | N/A | 0.000 | N/A | 0.000 | 0.000 | 3.101 |
| Channel Controller (CC) Software development | FPAF | ViaSat Corp Carlsbad, CA | 0.000 | 1.074 | 06/08 | 0.000 | N/A | 0.000 | N/A | 0.000 | 0.000 | 1.074 |
| CC terminal Software development | FPAF | Gen. Dynamics Scottsdale, AZ | 0.000 | 1.824 | 08/07 | 0.000 | N/A | 0.000 | N/A | 0.000 | 0.000 | 1.824 |
| Terminal certification testing | FPAF | JITC Various Contracts | 0.000 | 1.963 | 11/07 | 0.000 | N/A | 0.500 | TBD | 0.000 | 0.000 | 2.463 |
| Engineering & Help Desk Support | CPFF | Able Communications Sterling, VA | 6.500 | 2.524 | 09/07 | 0.000 | N/A | 0.500 | TBD | 0.000 | 0.000 | 9.524 |
| Integrated Broadcast Service Software development | FPAF | Xenotran Linthicum Heights, MD | 0.000 | 4.604 | 08/07 | 0.000 | N/A | 0.000 | N/A | 0.000 | 0.000 | 4.604 |
| Fielding | FPAF | Able Communications Sterling, VA | 0.000 | 0.746 | 09/07 | 0.000 | N/A | 0.000 | N/A | 0.000 | 0.000 | 0.746 |
| TOTAL | | | 22.500 | 28.874 | | | | 7.000 | | | | 58.374 |

**Exhibit R-4, RDT&E Program Schedule Profile** | Date: February 2008

| Appropriation/Budget Activity | Program Element Number and Name | Project Number and Name |
|---|---|---|
| RDT&E, Defense-Wide, 07 | PE 0302019K, Defense Info Infrastructure Engineering and Integration | KCD, UHF SATCOM Integrated Waveform |



| Exhibit R-4a, RDT&E Program Schedule Detail | | Date: February 2008 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>RDT&E, Defense-Wide/07 | PROGRAM ELEMENT NUMBER AND NAME<br>PE 0302019K/DII Engineering & Integration | PROJECT NUMBER AND NAME<br>KCD/UHF SATCOM Integrated Waveform |

| Schedule Profile | FY 2007 | FY 2008 | FY 2009 | FY 2010 | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|---|---|---|---|
| Integrated Waveform (IW) Software Development for UHF SATCOM terminals | | 4Q | | 3Q | | | |
| IW Controller Terminal Upgrade | | 4Q | | | | | |
| IW Controller Upgrade | | 4Q | | | | | |
| JITC Certification | | 4Q | | 4Q | | | |
| Fielding | | 4Q | | 4Q | | | |
| Help Desk | | 3Q | | 4Q | | | |
| IBS Software | | 3Q | | | | | |

| Exhibit R-2a, RDT&E Project Justification | | | | | Date: February 2008 | | |
|---|---|---|---|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>RDT&E, Defense-Wide/07 | | | | PROJECT NAME AND NUMBER<br>Global Information Grid (GIG) Systems Engineering and Support/T62 | | | |
| Cost ($ in millions) | FY 2007 | FY 2008 | FY 2009 | FY 2010 | FY 2011 | FY 2012 | FY 2013 |
| Project Cost | 4.320 | 2.621 | 2.776 | 2.848 | 2.826 | 2.996 | 2.692 |

**A. Mission Description and Budget Item Justification:**
Efforts under this project will strengthen critical Global Information Grid (GIG) technologies and programs through the establishment of DISA technology strategies, and through the implementation of those strategies in DISA programs and services. This engineering and technical expertise will be applied in conducting technical reviews of all solutions, products, and services to determine compliance with overall DISA strategy, and to evaluate soundness of technical approach. This effort will support end-to-end reviews of all solutions, programs, and services to ensure all are consistent with GIG architecture and standards. This project supports definition of various aspects of evolving the GIG, including developing system architecture constructs for the GIG and its components, providing engineering guidance for component evolution including incorporation of new technology from industry. Subtasks are assigned based on need to address specific technical problems, mitigate risks, and take advantage of cross-program synergies.
FY2007- Piloted and developed limited operational capability for the Joint Enterprise Directory Service (JEDS), which includes a harvesting and publishing service used to provide DoD White pages and limited attributes to support attribute based access control in support of NCES.

**B. Accomplishments/Planned Program:**

| | FY 2007 | FY 2008 | FY 2009 |
|---|---|---|---|
| Subtotal Cost | 4.320 | 2.621 | 2.776 |

Engineering and technical support of DISA programs that implement the GIG involves technical research and analysis of state-of-the-art and emerging technologies, security, architectures, and application frameworks. This involves the identification and recommendation of innovative engineering techniques, technologies and products effort.

**C. Other Program Funding Summary**:

| | FY 2007 | FY 2008 | FY 2009 | FY 2010 | FY 2011 | FY 2012 | FY 2013 | To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| O&M, DW | 0.928 | 0.889 | 0.911 | 0.921 | 0.875 | 0.897 | 0.893 | Cont'g | Cont'g |

**D. Acquisition Strategy:** This project provides technical, engineering, and integration expertise to the DISA Chief Technology Officer (CTO) in support of the major GIG components, which include: GIG Enterprise Services (GES), Defense Information Systems Network (DISN), Satellite Communications (SATCOM), GIG Directory Service, Global Combat Support

| Exhibit R-2a, RDT&E Project Justification | | | | | Date: February 2008 | | |
|---|---|---|---|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>RDT&E, Defense-Wide/07 | | | | PROJECT NAME AND NUMBER<br>Global Information Grid (GIG) Systems Engineering and Support/T62 | | | |
| Cost ($ in millions) | FY 2007 | FY 2008 | FY 2009 | FY 2010 | FY 2011 | FY 2012 | FY 2013 |
| Project Cost | 4.320 | 2.621 | 2.776 | 2.848 | 2.826 | 2.996 | 2.692 |

System (GCSS), Net-Enabled Command Capability (NECC), Teleport, Global Command and Control System (GCCS), Enterprise Services Management (ESM), Information Assurance (IA), Wireless Services, Net-Centric Enterprise Services (NCES), and other related components. Through this project MITRE will support the definition and implementation of various aspects involving the GIG. MITRE will provide support to DISA in its mission of providing end-to-end systems engineering for the DoD for GIG Enterprise Services. MITRE will ensure that system integration and implementation is coordinated with other major C2 systems via its support to other C2 System Program Executive Offices.

**E. Performance Metrics:**

The Task Order is composed of multiple short-suspense technology research/exploration components with a concrete deliverable targeted at some facet of the DISA mission.

Each research initiative is produced in collaboration with a designated task subject matter specialist.

These engineering tasks are short term in nature and designed to facilitate bringing high-potential over-the-horizon technology into engineering programs supporting the Agency mission.

Engineering support is provided for CTO technical reviews of DISA programs, at least 4 reviews supported per month.

**F. Major Performers:**

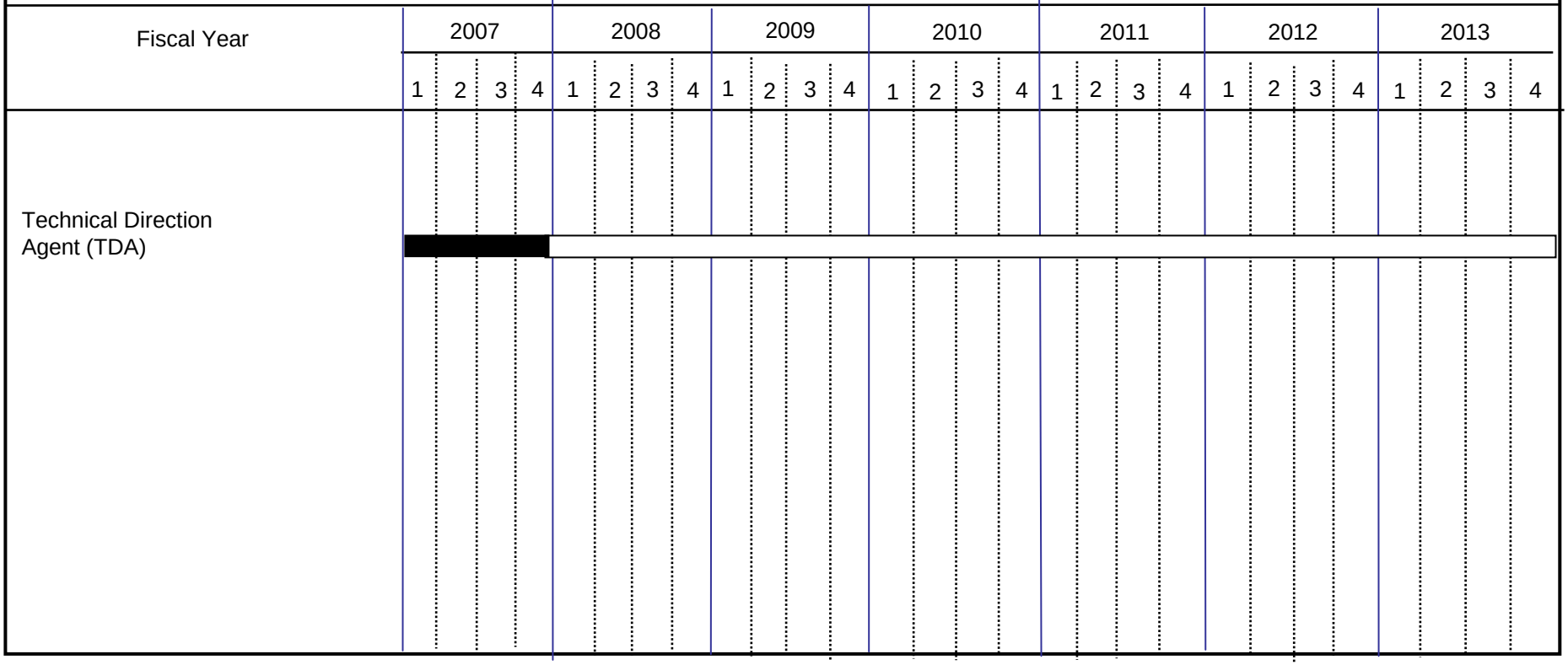
MITRE, McLean, VA. MITRE applies systems engineering, advanced technology, and research and development to provide technical expertise in support of DISA’s mission as described in the Acquisition Strategy section. FY 2008 – 10/07 and 02/08; FY 2009 – 10/08 and 02/09

| Exhibit R-3 RDT&E Cost Analysis | | Date: February 2008 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>RDT&E, Defense-Wide/07 | PROGRAM ELEMENT<br>PE 0302019K | PROJECT NAME AND NUMBER<br>Global Information Grid (GIG) Systems Engineering and Support/T62 |

| Cost Category | Contract Method & Type | Performing Activity & Location | Total PY Cost ($000) | FY07 Cost ($000) | FY07 Award Date | FY08 Cost ($000) | FY08 Award Date | FY09 Cost ($000) | FY09 Award Date | Cost To Complete ($000) | Total Cost ($000) | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Engineering /Tech Services | Other Than Full & Open CPFF | MITRE McLean, VA | 11.616 | 0.000 | 1 Feb 07 | 2.286 | 1 Feb 08 | 2.468 | 1 Feb 09 | Cont'g | Cont'g | 18.448 |
| SME Support | | Various Contracts | 0.185 | 0.000 | 7 May 07 | 0.335 | Various | 0.308 | Various | Cont'g | Cont'g | 0.955 |
| Systems Engineering for JEDS | MIPR/T&M/FP | JITC/BAE/SRA | 0.000 | 3.319 | Various | 0.000 | N/A | 0.000 | N/A | | | 3.319 |
| JEDS consulting support for CM | MIPR/T&M/FP | BAH, McLean, VA | 0.000 | 0.268 | Feb 2007 | 0.000 | N/A | 0.000 | N/A | | | 0.268 |
| CSD Hosting Cost for JEDS | MIPR/FP | DISA, CSD | 0.000 | 0.058 | Aug 2007 | 0.000 | N/A | 0.000 | N/A | | | 0.058 |
| JEDS HW/SW developmental support | MIPR/C | Various | 0.000 | 0.675 | Various | 0.000 | N/A | 0.000 | N/A | | | 0.675 |
| Total | | | 11.801 | 4.320 | | 2.621 | | 2.776 | | | | |

**Exhibit R-4, RDT&E Program Schedule Profile** | Date: February 2008

| Appropriation/Budget Activity | Program Element Number and Name | Project Number and Name |
|---|---|---|
| RDT&E, Defense-Wide, 07 | PE 0302019K, Defense Info Infrastructure Engineering and Integration | T62, Global Information Grid (GIG) Systems Engineering and Support |



| **Exhibit R-4a Schedule Detail** | | Date: February 2008 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>RDT&E, Defense-Wide/07 | PROGRAM ELEMENT NUMBER AND NAME<br>PE 0302019K/DII Engineering & Integration | PROJECT NUMBER AND NAME<br>T62/Global Information Grid (GIG) Systems Engineering and Support |

| Schedule Profile | FY 2007 | FY 2008 | FY 2009 | FY 2010 | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|---|---|---|---|
| Technical Direction Agent (TDA) | 1-4Q | 1-4Q | 1-4Q | 1-4Q | 1-4Q | 1-4Q | 1-4Q |