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Exhibit R-2, RDT&E Budget Item Justification				Date: May 2009				
Appropriation/Budget Activity RDT&E, Defense-Wide/07			R-1 Item Nomenclature Defense Info Infrastructure Engineering and Integration/PE 0302019K					
Cost (\$ in millions)	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
Total Program Element	8.249	15.852	17.655					
Modeling and Simulation/E65	4.114	6.199	7.237					
UHF SATCOM Integrated Waveform/KCD	0.000	6.911	0.000					
Global Information Grid Systems Engineering & Support/T62	4.135	2.742	10.418					

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. Three projects encompass this program: (1) Modeling and Simulation, project E65, (2) UHF SATCOM Integrated Waveform, project KCD, and (3) GIG Engineering and Support, project T62.

Modeling and Simulation, Project E65, 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; and systems-level modeling and simulation.

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.

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.

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Cost (\$ in millions)	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
Total Program Element	8.249	15.852	17.655					

B. Program Change Summary:

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
FY 2009 President's Budget	5.229	16.054	10.548
FY 2010 President's Budget	8.249	15.852	17.655
Total Adjustments	3.020	-0.202	7.107

Change Summary Explanation: The FY 2008 funding was increased due to a below threshold reprogramming to support the GIG Engineering Services program efforts. FY 2009 reflects reductions of -\$0.159 million for FFRDC's and -\$0.043 million for Economic Assumptions. FY 2010 adjustments reflect an increase of \$7.700 million for the Demand-Assigned Multiple Access Compatible (DAMA-C) effort, an essential capability, supporting combat search and rescue for the warfighter. There were decreases of -\$0.118 million due to revised inflation rates and a realignment of -\$0.475 million to support emerging mission critical requirements within the Agency.

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Exhibit R-2a, RDT&E Project Justification						Date: May 2009		
Appropriation/Budget Activity RDT&E, Defense-Wide/07				Project Name and Number Modeling & Simulation/E65				
Cost (\$ in millions)	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
Project Cost	4.114	6.199	7.237					

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; 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 implementation of GIG Enterprise-Wide (EW) Systems Engineering (SE) processes essential to evolving the GIG in a manner that enables interoperability and end-to-end performance for critical GIG programs that are consistent with them and with each other; (2) developing standardized DISA systems analyses 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. Benefits include: improved performance and cost-avoidance in the selected transitions and network deployments. Cost avoidance of even 1 percent of yearly DISN costs exceeds cost of Modeling & Simulation; improved network performance and cost reductions via accurate capacity design, as facilitated by insightful traffic analyses; improved performance of applications for DoD and the warfighter; cost avoidance of troubleshooting and redesign; reduced risk in the program products provided to the warfighter; and, reduced cost of instrumenting for troubleshooting.

B. Accomplishments/Planned Program:

Modeling and Simulation	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Subtotal Cost	4.114	6.199	7.237

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Exhibit R-2a, RDT&E Project Justification						Date: May 2009		
Appropriation/Budget Activity RDT&E, Defense-Wide/07				Project Name and Number Modeling & Simulation/E65				
Cost (\$ in millions)	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
Project Cost	4.114	6.199	7.237					

FY 2008 - Funded Modeling and Simulation applications to support DISN predictive modeling capacity planning, topology, and DISN Transport design. Incorporated Services models to provide end to end performance capacity to analyze the GIG performance. Provided performance analysis and technical recommendations for COCOMs network redesign and upgrades. Built and simulated the GIG Internet Protocol (IP) convergence model to predict network behavior for design and upgrade. Performed modeling and simulation to assist DISA and DoD programs and services in migration to the IPv6 network.

FY 2009 - Funds Modeling and Simulation applications to support DISN predictive modeling capacity planning, topology, and DISN Transport design. Incorporates Services models and evolves the Joint Communication Simulation System core model to provide capabilities to analyze End to End capacity and assess the GIG performance. Provides performance analysis and technical recommendations for COCOMs network redesign and upgrades. Builds and simulates the GIG IP convergence model to predict network behavior for design and upgrade, in accordance with the DISN Strategic Vision. Provides an instrumentation capability to allow detailed performance measures for deployed DISA applications.

FY 2010 and FY 2011 - Funds continual evolution of Modeling and Simulation tools and techniques to support capacity planning, topology design, and predictive performance assessments of the multi-layer (e.g., IP, Optical, Real Time Services) evolving DISN, as it incorporates/adapts to newer technologies. The funds will build a model to validate the GIG architecture frame work. Provides performance measurement and instrumentation to DISA acquisition programs. The program will 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. Performs, analyzes, and provides technical recommendations to improve performance of the tactical edge network within the GIG. Incorporates Services models to provide end-to-end performance analysis of the GIG. Provides performance analysis and technical recommendations for COCOMs network redesign, upgrades. This project will build and simulate the GIG IP convergence model to predict network behavior, for design and upgrade. Performs 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. Supports end-to-end systems engineering in performing Performance Analysis, Topology Design, Capacity Planning, Traffic Analysis and Modeling of the DISN IP/Transport layers, to include modeling and design of the optical mesh and leased extension

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Exhibit R-2a, RDT&E Project Justification						Date: May 2009		
Appropriation/Budget Activity RDT&E, Defense-Wide/07				Project Name and Number Modeling & Simulation/E65				
Cost (\$ in millions)	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
Project Cost	4.114	6.199	7.237					

topologies for the DISN. Tool and capabilities enhancements provide modeling and analysis of the transport networks to identify, investigate, and develop solutions for network and routing anomalies. Provide analysis, design, and "what-if" modeling capability for the DISN IP Layer, as use of Multiprotocol Label Switching (MPLS), Virtual Private Networks (VPNs), High Assurance Internet Protocol Encryption (HAIPes), IPv6 and other new methods affect the CONOPS. Establish capability to continue end-to-end traffic analysis under such changes. Provide an automated means for traffic insight for performance management and capacity planning; ensure collection, rapid processing, and useful statistics presentation.

C. Other Program Funding Summary:

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	To Complete Cont'g	Total Cost Cont'g
O&M, DW	6.585	18.514	19.347							

D. Acquisition Strategy: Uses a number of contractors for modeling support with OPNET Technologies, Booz Allen Hamilton, SRA, SAIC, Comptel, and APPTIS being the main providers of these services. The level of support includes network modeling tool and processes development to adapt to ever-evolving OSD/DISA programs and projects; analyses using the topological models; and capacity planning 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, for communications systems and other programs/projects. The most significant criteria are total operational cost followed by installation cost. Modeling supports laying out the DISN target network in a methodical way that ensures undue-cost avoidance, to include early evaluation of alternative approaches/architectures to allow selection of the most cost-effective approach. Additional criteria include

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Cost (\$ in millions)	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
Project Cost	4.114	6.199	7.237					

application assessments and resulting improvements made; contingency planning; network capacity planning and diagnostics; system architecture evaluation; technical and operational assessments of emerging technologies; and systems-level modeling and simulation.

1 - Timeliness of M&S tools/techniques - R&D funds the development of modeling tools and techniques, which in turn support DISA programs/projects. A basic success metric is whether the necessary developments are planned and completed in time to ensure the M&S capabilities are ready for addressing the program/project questions. For instance, the DISN has a strategic plan, calling for IP convergence of services. M&S capabilities must evolve to be consistent with the planning and implementation of the evolving technical strategy, e.g., DISN models at the proper granularity that reflect the evolving proposed then deployed and operational networks.

2 - Effectiveness of M&S tools/techniques -

- meeting Program/Project decision-point schedules. Modeling processes provide decision support to Program/project managers throughout the life cycle of their programs/projects. Programs/projects have their schedules and deadlines. A performance metric for M&S is whether results/recommendations required from M&S are provided in time to meet the decision points of the program/project they are supporting. An example is providing results in time for meeting recurring POM or other budget/expense planning by the PMs.
- cost-savings resulting from M&S application. An expectation of M&S is that it can make PM decisions better regarding system cost. M&S is largely predictive, meaning identifying a smart course of action or target design that should avoid undue-cost. When used for cost optimization, a metric for M&S is whether the models and modeling process properly considers all relevant cost factors in leading to recommended designs/implementations. In some cases, when applied to an operational, stable, system, a direct metric for M&S is the actual dollar savings achieved by redesigning the operational system in accord with M&S redesign.
- performance improvements from M&S application. Similarly, a metric for M&S is its success in providing recommendations that result in observed improvements, in the operational system, over previously measured system performance.

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Exhibit R-3 RDT&E Project Cost Analysis											Date: May 2009			
Appropriation/Budget Activity RDT&E, Defense-Wide/07			Program Element PE 0302019K								Project Name and Number Modeling & Simulation/E65			
Cost Category	Contract Method & Type	Performing Activity & Location	Total PY Cost (\$000)	FY08 Cost (\$000)	FY08 Award Date	FY09 Cost (\$000)	FY09 Award Date	FY10 Cost (\$000)	FY10 Award Date	FY11 Cost (\$000)	FY11 Award Date	Cost to Complete (\$000)	Total Cost (\$000)	Target Value of Contract
Modeling and Simulation	FFP	OPNET Tech, Inc. Bethesda, MD	0.631	0.631	01/08	1.250	1/09	1.512	1/10			Cont'g	Cont'g	5.209
	ENCORE II FFP/T&M	TBD; Probables : SRA, Fairfax, VA; BAH, McLean, VA	0.394	0.394	03/08	0.850	1/09	1.028	1/10			Cont'g	Cont'g	3.489
	DGS CPFF	APPTIS, Chantilly, VA	0.257	0.257	01/08	0.250	1/09	0.303	1/10			Cont'g	Cont'g	1.168
	Sole Source 8A CPFF	Comptel, Arlington, VA	0.636	0.636	01/08	0.400	1/09	0.484	1/10			Cont'g	Cont'g	2.093
	Sole Source FFP	Noblis, Falls Church, VA	0.316	0.316	01/08	0.300	1/09	0.363	1/10			Cont'g	Cont'g	1.409
	BPA (H/W, S/W for R&D)	TBD	N/A	N/A	N/A	0.108	4/09	0.130	4/10			Cont'g	Cont'g	0.393
	FFP	TBD	N/A	N/A	N/A	0.463	7/09	0.560	7/10			Cont'g	Cont'g	1.686
	Booz Allen & Hamilton McLean, VA		1.880	1.880	10/07	1.554	10/08	2.021	10/09			Cont'g	Cont'g	8.231

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Exhibit R-3 RDT&E Project Cost Analysis						Date: May 2009		
Appropriation/Budget Activity		Program Element				Project Name and Number		
RDT&E, Defense-Wide/07		PE 0302019K				Modeling & Simulation/E65		
TBD	N/A	1.024	10/08	0.836	10/08	Cont'g	Cont'g	2.729
TOTAL	4.114	4.114	6.199	7.237				

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Exhibit R-4, RDT&E Program Schedule Profile																Date: May 2009																
Appropriation/Budget Activity RDT&E, Defense-Wide, 07								Program Element Number and Name PE 0302019K, Defense Info Infrastructure Engineering and Integration								Project Number and Name E65, Modeling & Simulation																
Fiscal Year	FY 2008				FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015			
	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
Horizontal Engineering	△	△	△	△	△	△	△	△	△	△	△	△																				
Modeling and Simulation Applications	△	△	△	△	△	△	△	△	△	△	△	△																				

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Exhibit R-4a, RDT&E Program Schedule Detail		DATE: May 2009
Appropriation/Budget Activity RDT&E, Defense-Wide/07	Program Element Number and Name PE 0302019K/Defense Info Infrastructure Engineering and Integration	Project Number and Name E65/Modeling and Simulation

<u>Schedule Profile</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>
Horizontal Engineering	1Q-4Q	1Q-4Q	1Q-4Q					
Modeling and Simulation Applications	1Q-4Q	1Q-4Q	1Q-4Q					

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Exhibit R-2a, RDT&E Project Justification				Date: May 2009				
Appropriation/Budget Activity RDT&E, Defense-Wide/07			Project Name and Number UHF SATCOM Integrated Waveform/KCD					
Cost (\$ in millions)	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
Project Cost	0.000	6.911	0.000					

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 currently the only 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 remains extremely oversubscribed. The replacement system, the Mobile User Objective System (MUOS), will not provide initial operational capability (IOC) until approximately 2010. The MUOS deployment is contingent on the Joint Tactical Radio System (JTRS) terminals being fielded across all services. Even after MUOS and JTRS are fully deployed, the need and demand for legacy UHF SATCOM will remain. 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. But even with these additional channels, UHF SATCOM resources are not sufficient to meet CENTCOM needs.

B. Accomplishments/Planned Program:

UHF SATCOM Integrated Waveform	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Subtotal Cost	0.000	6.911	0.000

FY 2009 - Development of IW capabilities in PRC-152 and ARC-210 radios to realize a larger community of IW users. The approach for the PRC-152 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 Capabilities Board endorsed the recommendations and DISA took the lead of

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Appropriation/Budget Activity RDT&E, Defense-Wide/07			Project Name and Number UHF SATCOM Integrated Waveform/KCD					
Cost (\$ in millions)	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
Project Cost	0.000	6.911	0.000					

the software development for six families 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) and the Satellite Access Control (SAC) system developed by ViaSat Corporation will be fielded to support IW. Fixed price contracts have been 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 Harris Corporation, Inc. for PRC-152 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 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. Currently, the PSC-5D is progressing through testing at JITC. The PRC-117F is scheduled to begin testing at JITC in the second quarter of fiscal year 2009.

In addition, the following metrics have been implemented:

1. Planned versus actual schedule (difference in days) for major milestones/deliverables.
2. Number of planned versus actual funds spent.
3. Adherence of contractor deliverables to SOW specifications.
4. Compliance with Performance Plans contained in contracted efforts.

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.

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Exhibit R-2a, RDT&E Project Justification				Date: May 2009				
Appropriation/Budget Activity RDT&E, Defense-Wide/07			Project Name and Number UHF SATCOM Integrated Waveform/KCD					
Cost (\$ in millions)	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
Project Cost	0.000	6.911	0.000					

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, and the IW Satellite Access Controller and Control Terminal

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

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.

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Exhibit R-3 RDT&E Cost Analysis										Date: May 2009				
Appropriation/Budget Activity			Program Element							Project Name and Number				
RDT&E, Defense-Wide/07			PE 0302019K							UHF SATCOM Integrated Waveform/KCD				
<u>OCost Category</u>	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total PY Cost (\$000)</u>	<u>FY08 Cost (\$000)</u>	<u>FY08 Award Date</u>	<u>FY09 Cost (\$000)</u>	<u>FY09 Award Date</u>	<u>FY10 Cost (\$000)</u>	<u>FY10 Award Date</u>	<u>FY11 Cost (\$000)</u>	<u>FY11 Award Date</u>	<u>Cost to Complete (\$000)</u>	<u>Total Cost (\$000)</u>	<u>Target Value of Contract</u>
Integrated Waveform software development for deployed legacy terminals	FPAF	Harris Corp Rochester, NY	14.817	N/A	N/A	3.000	TBD	N/A	N/A			N/A	N/A	17.817
	FPAF	Raytheon Corp Ft. Wayne, IN	12.674	N/A	N/A	N/A	N/A	N/A	N/A			N/A	N/A	12.674
	FPAF	ViaSat Corp Carlsbad, CA	1.547	N/A	N/A	N/A	N/A	N/A	N/A			N/A	N/A	1.547
	FPAF	Rockwell Collins Cedar Rapids, IA	0.000	N/A	N/A	3.000	TBD	N/A	N/A			N/A	N/A	3.000
Channel Controller (CC) Software development	FFP	ViaSat Corp Carlsbad, CA	9.318	N/A	N/A	N/A	N/A	N/A	N/A			N/A	N/A	9.318
CC terminal Software development	FPAF	Gen. Dynamics Scottsdale, AZ	1.824	N/A	N/A	N/A	N/A	N/A	N/A			N/A	N/A	1.824
Terminal certification testing	FPAF	JITC Various Contracts	3.792	N/A	N/A	0.456	04/09	N/A	N/A			N/A	N/A	4.247
Engineering & Help Desk Support	CPFF	Able Comm. Sterling, VA	9.524	N/A	N/A	0.455	02/09	N/A	N/A			N/A	N/A	9.979
Integrated Broadcast Service Software development	FPAF	Xenotran Linthicum Heights, MD	4.604	N/A	N/A	N/A	N/A	N/A	N/A			N/A	N/A	4.604
Fielding	FPAF	Able Comm. Sterling, VA	0.746	N/A	N/A	N/A	N/A	N/A	N/A			N/A	N/A	0.746
TOTAL			58.846	N/A		6.911		N/A				N/A	N/A	65.756

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Exhibit R-4, RDT&E Program Schedule Profile																	Date: May 2009															
Appropriation/Budget Activity RDT&E, Defense-Wide, 07								Program Element Number and Name PE 0302019K, Defense Info Infrastructure Engineering and Integration												Project Number and Name KCD, UHF SATCOM Integrated Waveform												
Fiscal Year	FY 2008				FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015			
	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
Integrated Waveform (IW) Software Development for selected UHF SATCOM terminals						△																										
JITC Certification												△																				

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Exhibit R-4a, RDT&E Program Schedule Detail		Date: May 2009						
Appropriation/Budget Activity	Program Element and Name					Project Number and Name		
RDT&E, Defense-Wide/07	PE 0302019K/DII Engineering & Integration					KCD/UHF SATCOM Integrated Waveform		
<u>Schedule Profile</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>
Integrated Waveform (IW) Software Development for UHF SATCOM terminals		2Q						
JITC Certification			3Q					

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Exhibit R-2a, RDT&E Project Justification				Date: May 2009				
Appropriation/Budget Activity RDT&E, Defense-Wide/07			Project Name and Number Global Information Grid (GIG) Systems Engineering and Support/T62					
Cost (\$ in millions)	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
Project Cost	4.135	2.742	10.418					

A. Mission Description and Budget Item Justification: Efforts under this project will strengthen the delivery of critical Global Information Grid (GIG) products, services, and capabilities to the warfighter through the establishment of DISA technology positions, strategies, and roadmaps, as well as technology development and insertion into DISA programs of record while also influencing Service/Agency program technology investments. This project is important because the CTO provides the venue for technology assessment and insertion in DISA (and DoD) that results in more efficient and effective technology investments and ultimately improved global, net-centric operations. If this project is not funded in FY 2010, the DoD will lose this crucial capability that ensures engineering rigor, technical soundness, and alignment with GIG architectural constructs in the products, services, and capabilities delivered to the Services, COCOMS, OSD, and the Joint Staff. In order to provide this engineering rigor in support of the DISA (and DoD) programs implementing the GIG, the CTO project conducts a multi-tiered approach to technical research and analysis which includes identification of near-term critical technical solutions, mid-term technology investments, and long-term, high-potential over-the-horizon technology innovation. CTO engineering and technical expertise will be applied in conducting technical assessments and reviews of all solutions, products, services, and capabilities to determine compliance with overall DISA mission and strategy, and to evaluate soundness of technical approach.

B. Accomplishments/Planned Program:

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Subtotal Cost	4.135	2.742	10.418

FY 2008 funding was to support the Technology Readiness Assessments (\$4.135 million) for several key DISA programs of record, GIG FDCE foundational efforts, forward edge computing technology demonstrations, extension of broadcast-to-desktop video services using non-traditional fielded technology, development of Security Technical Implementation Guidelines for specialized operating systems for the DISA Field Security Operations group, and focused technology tiger teams to develop a design and execution plan for the next generation DoD intranet infrastructure to improve information sharing, information security, and network performance.

In FY 2009, the CTO project will continue to support the Technology Readiness Assessments (\$2.742 million) for several key DISA programs of record, GIG FDCE foundational efforts, the extension of broadcast-to-desktop video services using non-traditional fielded technology, and focused technology tiger teams to develop a design and execution plan for the next generation DoD intranet infrastructure, as well as enterprise thin client architecture for the Joint Staff.

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Exhibit R-2a, RDT&E Project Justification				Date: May 2009				
Appropriation/Budget Activity RDT&E, Defense-Wide/07			Project Name and Number Global Information Grid (GIG) Systems Engineering and Support/T62					
Cost (\$ in millions)	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
Project Cost	4.135	2.742	10.418					

In FY 2010, funding in the CTO project will support Technology Readiness Assessments (TRA) (\$2.718 million), technology analysis and demonstrations involving cloud computing and GIG 2.0, focused technology tiger teams to develop a design and execution plan for the next generation DoD intranet infrastructure, technology integration and insertion into programs of record, and technology positions, strategies, and roadmaps for DISA and DoD.

Demand-Assigned Multiple Access Compatible (DAMA-C) (\$7.700 million) is an essential capability supporting combat search and rescue. It will provide significantly improved sharing of legacy UHF satellite resources for tens of thousands of disadvantaged user terminals, mainly handhelds deployed as survival radios, or as support to special operations forces (Combat Survivor Evader Locator, etc.). DAMA-C is compatible with existing UHF DAMA systems using legacy UHF SATCOM. The development and fielding of the DAMA-C standard and infrastructure IOC cost is \$11.700 million. This includes certification by both JITC and NSA. Specifically the funding for FY 2010 is \$7.700 million to complete development of the DAMA-C specification; DAMA-C engineering and design; hardware certification; and begin development and fielding DAMA-C controller infrastructure.

C. Other Program Funding Summary:

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	To <u>Complete</u>	Total <u>Cost</u>
O&M, DW	0.691	0.733	0.737						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 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.

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Exhibit R-2a, RDT&E Project Justification				Date: May 2009				
Appropriation/Budget Activity RDT&E, Defense-Wide/07		Project Name and Number Global Information Grid (GIG) Systems Engineering and Support/T62						
Cost (\$ in millions)	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
Project Cost	4.135	2.742	10.418					

E. Performance Metrics: The CTO's task order is composed of multiple short-suspense technology research/exploration components with a concrete deliverable targeted at some facet of the DISA mission. Examples of deliverables include: Technology Readiness Assessments (TRA); technology analysis and demonstrations involving cloud computing and GIG 2.0; focused technology tiger teams to develop a design and execution plan for the next generation DoD intranet infrastructure; technology integration and insertion into programs of record; technology positions, strategies, and roadmaps for DISA and DoD. These engineering tasks use a three-tiered approach designed to facilitate near-term technical solutions, mid-term technology investments, and bring high-potential over-the-horizon technology innovation 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, a minimum of 2 positions, strategies, or roadmaps per year, and several technology demonstrations throughout the year as required.

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 2009 - 10/08; FY 2010 - 10/09

Encore II. The winning bidder will provide expertise to support technology assessments, feasibility studies, and development of guidance/policy recommendations on current and emerging technologies to include unified communications and collaboration, wired and wireless networking, Web 2.0, GIG 2.0, SOA, etc. These efforts are the basis for the development, fielding, operations and sustainment of critical, DOD net-centric products and services. FY 2009 - 10/08; FY 2010 - 10/09

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Exhibit R-3 RDT&E Cost Analysis										Date: May 2009				
Appropriation/Budget Activity RDT&E, Defense-Wide/07			Program Element PE 0302019K							Project Name and Number Global Information Grid (GIG) Systems Engineering and Support/T62				
<u>Cost Category</u>	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total PY Cost (\$000)</u>	<u>FY08 Cost (\$000)</u>	<u>FY08 Award Date</u>	<u>FY09 Cost (\$000)</u>	<u>FY09 Award Date</u>	<u>FY10 Cost (\$000)</u>	<u>FY10 Award Date</u>	<u>FY11 Cost (\$000)</u>	<u>FY11 Award Date</u>	<u>Cost To Complete (\$000)</u>	<u>Total Cost (\$000)</u>	<u>Target Value of Contract</u>
Engineering/ Tech Services	Other Than Full & Open CPFF	MITRE McLean, VA	13.912	3.782	10/07	2.191	10/08	2.178	10/09			Cont'g	Cont'g	22.711
SME Support		Various Contracts	N/A	0.051	Various	0.127	Various	0.130	Various			Cont'g	Cont'g	0.440
Engineering Support	FFP	SRA, Inc. Fairfax, VA	0.485	0.302	06/08	0.424	10/08	0.410	10/09			Cont'g	Cont'g	1.719
DAMA-C	Other Than Full & Open CPFF	Defense Microelec- tronics Activity	N/A	N/A	N/A	N/A	N/A	7.700	3/10			11.700	11.700	11.700
Total			14.397	4.135		2.742		10.418						36.570

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Exhibit R-4, RDT&E Program Schedule Profile																Date: May 2009																
Appropriation/Budget Activity RDT&E, Defense-Wide, 07								Program Element Number and Name PE 0302019K, Defense Info Infrastructure Engineering and Integration								Project Number and Name T62, Global Information Grid (GIG) Systems Engineering and Support																
Fiscal Year	FY 2008				FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015			
	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
Technical Direction Agent (TDA)	▲	▲	▲	▲	▲	△	△	△	△	△	△	△																				
Engineering Support					▲	△	△	△	△	△	△	△																				
DAMA-C										△	△	△																				

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Exhibit R-4a Schedule Detail		Date: May 2009
Appropriation/Budget Activity RDT&E, Defense-Wide/07	Program Element Number and Name PE 0302019K/DII Engineering & Integration	Project Number and Name T62/Global Information Grid (GIG) Systems Engineering and Support

<u>Schedule Profile</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>
Technical Direction Agent (TDA)	1Q-4Q	1Q-4Q	1Q-4Q					
Engineering Support		1Q-4Q	1Q-4Q					
DAMA-C			2Q-4Q					