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Exhibit R-2, RDT&E Budget Item Justification									DATE: February 1999	
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/07					R-1 ITEM NOMENCLATURE Support of the National Communications System/P.E. 0303127K					
COST (in millions)	FY98	FY99	FY00	FY01	FY02	FY03	FY04	FY05	Cost to Complete	Total Cost
Total Program Element	4.280	4.415	4.274	5.049	5.124	5.211	5.332	5.455	Contg	Contg
Enhanced Satellite Capability/N092	.519	.420	.420	.430	.435	.440	.482	.525	Contg	Contg
Interoperability/N088	1.958	1.710	1.619	2.339	2.389	2.456	2.450	2.443	Contg	Contg
Information Assurance/N094	.604	.525	.525	.530	.540	.550	.593	.636	Contg	Contg
Advanced Intelligent Network/N091	.868	1.300	1.240	1.280	1.285	1.290	1.332	1.376	Contg	Contg
NS/EP Telecommunications Integration Support/N095	.331	.460	.470	.470	.475	.475	.475	.475	Contg	Contg
<p>A. <u>Mission Description and Budget Item Justification</u> This program element supports Executive Order 12472 of 3 April 1984 which assigns the NCS the mission of assisting the President, the National Security Council, the Office of Science and Technology Policy, and the Office of Management and Budget, in exercising their wartime and non-wartime telecommunications functions and responsibilities, and coordinating the planning for, and provisioning of, National Security and Emergency Preparedness (NS/EP) telecommunications for the federal government under all circumstances. To attain this objective, there are several National Security Decision Directives which provide additional guidance to the NCS which require that initiatives be developed that will improve the survivability and interoperability of the commercial telecommunications systems that support national security and emergency preparedness requirements, enhance the potential NS/EP functionality of U.S. commercial satellites, and provide communications support for Government agencies which have responsibilities to carry out their essential functions in any emergency. Enhanced Satellite Capability explores developing satellite technologies and applications which include experiments with NASA's Advanced Communications Technology Satellite (ACTS); secure voice experiments over American Mobile Satellite Corporation Mobile Satellite (AMSAT), and the analysis of the newly proposed low earth</p>										

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<p>systems. Interoperability supports the Federal Telecommunications Standards Program, and ensures interoperability among emerging government communications systems. Information Assurance supports the Public Switched Network (PSN) in mitigating system vulnerabilities and related threats. Advanced Intelligent Network employs newly developed processing capabilities to tailor the extensive telecommunications resources of the PSN. NS/EP Telecommunications Integration provides a test and evaluation program to assess and evaluate the operational readiness and capabilities of NS/EP telecommunications programs, initiatives, and emerging technologies. This program element is under Budget Activity 07 because it involves efforts supporting operational systems development.</p>				
B. <u>Program Change Summary</u>				
	<u>FY1998</u>	<u>FY1999</u>	<u>FY2000</u>	<u>FY2001</u>
Previous President's Budget (FY 1999)	4.405	4.428	4.344	5.137
Appropriated Value	4.552	4.428		
Adjustments to Appropriated Value	-.272	-.013		
Adjustments to Budget Year Since FY 1999 President's Budget			-.070	-.088
Current Budget Submit/President's Budget (FY2000)	4.280	4.415	4.274	5.049
Change Summary Explanation				
Funding: FY98 & FY99 change due to undistributed congressional adjustments to Defense-wide RDT&E appropriation. FY00 & FY01 change due to revised inflation rates.				
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Exhibit R-2a, RDT&E Project Justification									DATE: February 1999	
APPROPRIATION/BUDGET ACTIVITY		PROGRAM ELEMENT				PROJECT NAME AND NUMBER				
RDT&E, Defense-Wide/07		Support of the NCS/0303127K				Interoperability/N088				
COST (in millions)	FY98	FY99	FY00	FY01	FY02	FY03	FY04	FY05	Cost to Complete	Total Cost
Project Cost	1.958	1.710	1.619	2.339	2.389	2.456	2.450	2.443	Contg	Contg
<p><u>A. Mission Description & Budget Item Justification:</u> This project analyzes new telecommunications technologies and their effects on interoperability of government communications and conducts related technical evaluations and standards development. Supports the Federal Telecommunications Standards Program. Ensures interoperability among emerging government communication systems, including related information systems, by providing the required analyses to the NCS member organizations and other government agencies through the development of initial specification and correlation of standards for specific types of communication and related information systems; the design of initial automated methods for application of standards to systems; the refinement and evaluation of program objectives in evolving technology environment.</p> <p><u>FY1998 Accomplishments:</u></p> <ul style="list-style-type: none"> o Developed network management standards for congestion control in NS/EP services on high-speed networks. (\$550K) (1st Qtr - 4th Qtr) o Developed analyses and contributions to standards in support of NS/EP services priority at intelligent network trigger detection points. (\$511K) (1st Qtr - 4th Qtr) o Conducted assessment of emerging technology and NS/EP applications. (\$400K) (1st Qtr - 4th Qtr) o Developed reliable and secure techniques for wireless networks and services. (\$497K) (1st Qtr - 4th Qtr) o Total \$1.958M <p><u>FY1999 Plans:</u></p> <ul style="list-style-type: none"> o Continue to resolve impediments to interoperability of systems supporting government communications. (\$450K) (1st Qtr - 4th Qtr) o Continue to analyze network management and congestion control of emerging high-speed digital networks to identify and solve NS/EP communication issues. (\$400K) (1st Qtr - 4th Qtr) o Continue to assess emerging technology and NS/EP applications. (\$399K) (1st Qtr - 4th Qtr) o Develop analyses and contributions in support of the development of video teleconferencing and multi-media standards. (\$461K) (1st Qtr - 4th Qtr) o Total \$1.710M 										

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Project Cost	1.958	1.710	1.619	2.339	2.389	2.456	2.450	2.443	Contg	Contg																		
<p>FY2000 Plans:</p> <ul style="list-style-type: none"> o Continue to develop technology, methods, and strategies to help ensure reliability of NS/EP communications through congested networks. (\$580K) (1st Qtr - 4th Qtr) o Continue to develop procedures for analyzing interoperability of NS/EP communications in various stress scenarios and with various information formats (e.g. voice video conferencing). (\$500K) (1st Qtr - 4th Qtr) o Continue to assess, evaluate, and extend advanced wireless communications technology and service for NS/EP communications. (\$539K) (1st Qtr - 4th Qtr) o Total \$1.619M <p>FY2001 Plans:</p> <ul style="list-style-type: none"> o Continue to develop technology, methods, and strategies to help ensure reliability of NS/EP communications through congested networks. (\$590K) (1st Qtr - 4th Qtr) o Continue to develop procedures for analyzing interoperability of NS/EP communications in various stress scenarios and with various information formats (e.g., voice video conferencing). (\$562K) (1st Qtr - 4th Qtr) o Assess advanced, emerging technology for its use by or impact on security and reliability of NS/EP communications (e.g., photonic switching). (\$525K) (1st Qtr - 4th Qtr) o Continue to assess, evaluate, and extend advanced wireless communications technology and services for NS/EP communications. (\$662K) (1st Qtr - 4th Qtr) o Total \$2.339M <p>B. <u>Other Program Funding Summary:</u></p> <table border="0"> <tr> <td></td> <td><u>FY1998</u></td> <td><u>FY1999</u></td> <td><u>FY2000</u></td> <td><u>FY2001</u></td> <td><u>FY2002</u></td> <td><u>FY2003</u></td> <td><u>FY2004</u></td> <td><u>FY2005</u></td> </tr> <tr> <td>O&M</td> <td>2.305</td> <td>2.706</td> <td>3.130</td> <td>3.220</td> <td>3.236</td> <td>3.163</td> <td>3.266</td> <td>3.202</td> </tr> </table>												<u>FY1998</u>	<u>FY1999</u>	<u>FY2000</u>	<u>FY2001</u>	<u>FY2002</u>	<u>FY2003</u>	<u>FY2004</u>	<u>FY2005</u>	O&M	2.305	2.706	3.130	3.220	3.236	3.163	3.266	3.202
	<u>FY1998</u>	<u>FY1999</u>	<u>FY2000</u>	<u>FY2001</u>	<u>FY2002</u>	<u>FY2003</u>	<u>FY2004</u>	<u>FY2005</u>																				
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Exhibit R-2a, RDT&E Project Justification									DATE: February 1999	
APPROPRIATION/BUDGET ACTIVITY		PROGRAM ELEMENT				PROJECT NAME AND NUMBER				
RDT&E, Defense-Wide/07		Support of the NCS/0303127K				Interoperability/N088				
COST (in millions)	FY98	FY99	FY00	FY01	FY02	FY03	FY04	FY05	Cost to Complete	Total Cost
Project Cost	1.958	1.710	1.619	2.339	2.389	2.456	2.450	2.443	Contg	Contg
<p>C. <u>Acquisition Strategy:</u></p> <p>Work will continue under existing contract vehicles and new reimbursable orders.</p> <p>D. <u>Schedule Profile</u></p> <p>FY98 - 4th quarter: Receive reports on analysis and contributions on NS/EP applications to multi-media standards. FY99 - 4th quarter: Receive reports and assessments of emerging technology for NS/EP applications. FY00 - 4th quarter: Receive reports on IMT-2000 technology and standards for input to final ITU-T meetings this 4-year study period. FY01 - 4th quarter: Receive reports on strategies for mitigating impact of congestion in high-speed networks (e.g., priority services, intelligent network rerouting). FY02 - 4th quarter: Receive reports on end-to-end priority treatment of NS/EP communications in public networks. FY03 - 4th quarter: Receive reports on impact on NS/EP communications of infrastructure transition to asynchronous transfer mode (ATM) switching. FY04 - 4th quarter: Receive reports on advanced, emerging technologies affecting NS/EP communications. FY05 - 4th quarter: Receive reports on advanced, emerging technologies affecting NS/EP communications.</p>										
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Exhibit R-3 Cost Analysis											DATE: February 1999	
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT					PROJECT NAME AND NUMBER				
RDT&E, Defense-Wide/07			Support of the NCS/0303127K					Interoperability/N088				
Cost Category	Contract Method & Type	Performing Activity & Location	Total PY's Cost	FY99 Cost	FY99 Award Date	FY00 Cost	FY00 Award Date	FY01 Cost	FY01 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Technical Support	RO	NTIA Boulder, CO	2.177	.750	05/99	.660	05/00	0	None	0	3.587	3.587
Technical Support	RO	NTIA Boulder, CO	0	0	None	0	None	.700	05/01	3.000	3.700	3.700
Technical Support	TBD	TBD	0	0	None	.200	05/00	.250	05/01	.600	1.050	1.050
Technical Support	RO	NIST Gathersburg, MD	.200	.200	04/99	.200	04/00	.450	04/01	.500	1.550	1.550
Subtotal Support Costs			2.377	.950		1.060		1.400		4.100	9.887	9.887
Handbook Development	RO	NTIA Boulder, CO	.200	.200	06/99	0	None	0	None	0	.400	.400
Report Development	CPAF/ 8(a)	COMtec Herndon, VA	.563	.360	07/99	.359	07/00	.589	07/01	1.050	2.921	2.921
Report Development	CPFF/ 8(a)	ARTEL Reston, VA	.200	.200	05/99	.200	05/00	.350	05/01	.600	1.550	1.550
Subtotal Product Development			.963	.760		.559		.939		1.650	4.871	4.871
Total Cost			3.340	1.710		1.619		2.339		5.750	14.758	14.758

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Exhibit R-2a, RDT&E Project Justification									DATE: February 1999	
APPROPRIATION/BUDGET ACTIVITY		PROGRAM ELEMENT				PROJECT NAME AND NUMBER				
RDT&E, Defense-Wide/07		DII Engineering & Integration/0302019K				Modeling & Simulation/E62				
COST (in millions)	FY98	FY99	FY00	FY01	FY02	FY03	FY04	FY05	Cost to Complete	Total Cost
Project Cost	0	4.031	4.439	4.565	4.543	4.623	4.730	4.839	Contg	Contg
<p>A. <u>Mission Description and Budget Item Justification:</u> The rapid evolution of the global military environment is driving a major evolution of the DOD force structure and military operations, requiring greater flexibility to meet the global warfighting requirements to rapidly project forces anywhere in the world. This effort supports the DOD communications planning and investment strategy for the successful deployment of DOD information systems by performing a broad spectrum of activities in support of C4I programs. DISA has the lead in DOD for providing modeling and simulation to DOD decision makers—from the OSD level to the war fighter—with services and a suite of tools capable of identifying key decision points that impact DOD command and control information systems. This work is essential to achieve the DISA goal of quality information services at an affordable cost through a deliberate decision management process. These services and tools will: 1) provide modeling and analysis support to the key DISA programs and initiatives of DMS, DISN and EC/EDI; 2) support initial INFOSEC/IW simulation efforts to give DISA the capability to determine the impact of IW attacks on the DII; 3) provide modeling and simulation assessment of the DII's ability to support CINC's, JCS, Services, and other Federal agencies' current and emerging C4ISR mission driven information requirements; 4) enhance the functionality of GOTS tools to engender an integrated environment in support of the modeling and simulation efforts of DISN, DMS, IW, GCSS, GCCS, and the DII; 5) investigate methods linking these models with other GOTS used in information network modeling, design and analysis; 6) explore the available COTS tools appropriate for developing models that will be used for sizing and performance assessment of information system architecture; and 7) stimulate GCCS through induction of combat models and simulations.</p> <p><u>FY1999 Plans:</u></p> <ul style="list-style-type: none"> o DISA Program Manager Support provides modeling and analysis support to the key DISA programs and initiatives of DMS, GCCS, DISN and Electronic Commerce. (\$1,298K) (1st Qtr - 4th Qtr) o Warfighter and CINC Support provides modeling and simulation assessment to evaluate communications and related systems to support CINC's, JCS, Services, and other Federal agencies' current and emerging C4ISR mission driven information requirements. (\$1,635K) (1st Qtr - 4th Qtr) 										
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COST (in millions)	FY98	FY99	FY00	FY01	FY02	FY03	FY04	FY05	Cost to Complete	Total Cost
Project Cost	0	4.031	4.439	4.565	4.543	4.623	4.730	4.839	Contg	Contg
<p>o Modeling and Simulation Tools provides DOD decision makers--from the OSD level to the warfighter--with a suite of tools capable of identifying key decision points required to carry out their mission in the most effective way. (\$1,098K) (1st Qtr - 4th Qtr).</p> <p>o Total \$4.031M</p> <p><u>FY2000 Plans:</u></p> <p>o DISA Program Manager Support will provide (a) DISN performance assessments for the integrated switching and transmission and recommendations for DISN performance improvement; (b) build flexibility into models to support EDS and Public Key Infrastructure (PKI); and (c) review systems design architecture to enhance DMS capability and use the DMS messaging model to evaluate DMS engineering decisions; (d) develop phase III of GCSS for GCCS integration with exercises. (\$1,407K) (1st Qtr - 4th Qtr).</p> <p>o Warfighter and CINC Support will (a) provide ongoing development and executive oversight of Joint C2 representations and ensure Joint Simulation System (JSIMS) interoperability with GCCS by Initial Operational Capability (IOC); (b) Configuration Management plans for Joint Warfare System (JWARS), JSIMS, monitor JCS/J8 instructions and notices providing USAF Expeditionary Force Experiment (EFX) Assessment Support and USCENTCOM "Internal Look" Exercise Support; and (c) Assessment of DII/DISN ability to support USSOUTHCOM during execution of a Major Theater War. (\$1,773K) (1st Qtr - 4th Qtr).</p> <p>o Modeling and Simulation (M&S) Tools will provide evaluation of communication and related systems effects on military campaign outcomes by (a) ensuring availability of network models commensurate with the evolving DISN and technology; (b) enhancing M&S tools to support DISA Vision 2010 objective; (c) enhancing M&S capability to reflect the evolving DISN network and changing network technology development and incremental builds to an integrated M&S tool based on COTS products; (d) model "end-to-end" tactical and strategic DISN network; and (e) support business case studies; (f) perform performance assessment for the DISN Asynchronous Transfer Mode (ATM) network performance modeling and assessment. (\$1,259K) (1st Qtr - 4th Qtr).</p> <p>o Total \$4.439M</p>										

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Project Cost	0	4.031	4.439	4.565	4.543	4.623	4.730	4.839	Contg	Contg
<p><u>FY2001 Plans:</u></p> <ul style="list-style-type: none"> o DISA Program Manager Support will: (a) continue DISN performance assessments for the integrated switching and transmission and conduct survivability modeling assessments of the DISN Bandwidth Manager topology; (b) provide system performance assessment and projections based on requirement and technology changes and provide analysis and projection of component performance, specifically the Electronic Commerce Processing Nodes; (c) initiate the collection/analysis of operational system performance and configure test scenarios, and (d) continue GCCS integration with CINC exercises and refine SIMLINK and GTSS based on CINC requirements. (\$1,449K) (1st Qtr - 4th Qtr). o Warfighter and CINC support will provide: (a) post-IOC development and executive oversight of Joint C2 representation and C2/JSIMS interfaces; and (b) exercise monitor Configuration Management Plans for JWARS. (\$1,825K) (1st Qtr - 4th Qtr). o Modeling and simulation tools will: (a) continue to enhance M&S capability to reflect the evolving DISN network; (b) continue development and incremental builds to an integrated M&S tool based on COTS products end-to-end; (c) enhance existing COTS M&S tools to support network performance modeling and assessment, reflecting DISN user requirements; (d) evaluate the functionality of tools for integrating C4I concepts into network modeling/analyses/assessments; (e) enhance M&S tools to support DISA Vision 2010 objectives. (\$1,291K) (1st Qtr - 4th Qtr). o Total \$4.565M 										

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<p>B. <u>Other Program Funding Summary:</u> O&M funding</p> <table border="1"> <thead> <tr> <th><u>FY1999</u></th> <th><u>FY2000</u></th> <th><u>FY2001</u></th> <th><u>FY2002</u></th> <th><u>FY2003</u></th> <th><u>FY2004</u></th> <th><u>FY2005</u></th> <th><u>To Complete</u></th> </tr> </thead> <tbody> <tr> <td>4.415</td> <td>4.792</td> <td>5.192</td> <td>5.296</td> <td>5.471</td> <td>5.639</td> <td>5.811</td> <td>Contg</td> </tr> </tbody> </table> <p>C. <u>Acquisition Strategy:</u> Work will continue under existing contract vehicles.</p> <p>D. <u>Schedule Profile</u></p> <p>FY99 - M&S support to the key DISA programs, 1st Qtr - 4th Qtr Modeling and simulation assessment to support CINC's, JCS, Services, and other Federal agencies, 1st Qtr - 4th Qtr Identify key decision points for decision makers from the OSD level to the warfighter, 1st Qtr - 4th Qtr</p> <p>FY00 - Support key DISA programs, (a) DISN performance assessments and (b) support to EDA and PKI, 1st Qtr - 4th Qtr Support JWARS and JSIMS IMS 1st Qtr - 4th Qtr Identify key decision points by ensuring availability of network models, 1st Qtr - 4th Qtr</p> <p>FY01 - Support to the key DISA programs, especially integrated switching and transmission, 1st Qtr - 4th Qtr Provide post-IOC development and oversight of Joint C2 representation and C2/JSIMS interfaces, 1st Qtr - 4th Qtr Enhance M&S capability to reflect the evolving DISN network, 1st Qtr - 4th Qtr</p> <p>FY02 - FY05 Continue to provide M&S support to the key DISA programs, 1st Qtr - 4th Qtr Continue to provide M&S assessment to CINC's, JCS, Services, and other Federal agencies, 1st Qtr - 4th Qtr Continue to identify key decision points for decision makers, 1st Qtr - 4th Qtr</p>											<u>FY1999</u>	<u>FY2000</u>	<u>FY2001</u>	<u>FY2002</u>	<u>FY2003</u>	<u>FY2004</u>	<u>FY2005</u>	<u>To Complete</u>	4.415	4.792	5.192	5.296	5.471	5.639	5.811	Contg
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4.415	4.792	5.192	5.296	5.471	5.639	5.811	Contg																			

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Exhibit R-3 Cost Analysis										DATE: February 1999		
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RDT&E, Defense-Wide/07			Support of the NCS/0303127K				Advanced Intelligent Network/N091					
Cost Category	Contract Method & Type	Performing Activity & Location	Total PY's Cost	FY99 Cost	FY99 Award Date	FY00 Cost	FY00 Award Date	FY01 Cost	FY01 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Technical Assistance	CPAF/C	BAH McLean, VA	.645	.261	Various	.201	Various	.220	Various	.250	1.577	1.577
Subtotal Support Costs			.645	.261		.201		.220		.250	1.577	1.577
Lucent Demonstration	Mod/DITCO	Lucent/Lisle, IL	.404	.188	04/99	.188	04/00	.198	04/01	0	.978	.978
Technical Reports	CPFF/SS	Bellcore Piscataway, NJ	2.043	.851	03/99	.851	03/00	.862	03/01	.886	5.493	5.493
Subtotal Product Development			2.447	1.039		1.039		1.060		.886	6.471	6.471
Total Cost			3.092	1.300		1.240		1.280		1.136	8.048	8.048

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