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EXHIBIT R-2, FY 2002 RDT&E,N Budget Item Justification

DATE: JUNE 2001

BUDGET ACTIVITY: 6

PROGRAM ELEMENT: 0605866N

PROGRAM ELEMENT TITLE: Navy Space and Electronic Warfare (SEW) Support

(U) COST: (Dollars in Thousands)

PROJECT

NUMBER	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	TO	TOTAL
TITLE	ACTUAL	ESTIMATE	ESTIMATE	ESTIMATE	ESTIMATE	ESTIMATE	ESTIMATE	ESTIMATE	COMPLETE	PROGRAM

R0739 Navy C4I Top Level Requirements										
	727	1,529	1,573							

X0706 EMI Reduction and Radio Frequency Management										
	1,228	1,703	1,860							

Total	1,955	3,232	3,433							
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A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

Project R0739 Navy C4I Top Level Requirements - Analyzes fleet requirements and research and development technology to develop top level plans for operating Navy Communications, Command and Control Computers, and Intelligence (C4I) and space systems in the Space and Electronic Warfare (SEW) mission area.

Project X0706 Electromagnetic Interference (EMI) Reduction and Radio Frequency (RF) Management - Develops advanced technology to identify and reduce EMI sources from Navy systems and platforms.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under RDT&E MANAGEMENT SUPPORT because it supports the operations and installations required for general research and development use.

B. (U) PROGRAM CHANGE FOR TOTAL P.E.: See Individual Projects.

R-1 Shopping List - Item No. 166-1 of 166-7

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EXHIBIT R-2a, FY 2002 RDT&E,N Project Justification

DATE: JUNE 2001

BUDGET ACTIVITY: 6

PROGRAM ELEMENT: 0605866N

PROJECT NUMBER: R0739

PROGRAM ELEMENT TITLE: SEW Support

PROJECT TITLE: Navy C4I Top Level Requirements

(U) COST: (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 2000 ACTUAL	FY 2001 ESTIMATE	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	FY 2006 ESTIMATE	FY 2007 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
R0739	Navy Command, Control, Communications, Computers and Intelligence (C4I) Top Level Requirements									
	727	1,529	1,573							

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This project provides analysis of fleet requirements and research and development technology to develop top level plans for operating Navy Communications, Command, Control, Communication and Computer Integration (C<sup>4</sup>I) and space systems in the Space and Electronic Warfare mission area.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 2000 ACCOMPLISHMENTS:

- (U) (\$125) Developed and maintained a cadre of personnel with specified education and focused experience as information warfare warriors. Built on the success of previous efforts with tracking system, ensure personnel distribution of Information Warfare professionals matched to their abilities.
- (U) (\$110) Investigated the feasibility of developing a platform-independent, external mount airborne pod for tactical Signal intelligence (SIGINT) data collection that is Joint Airborne SIGINT Architecture compliant.
- (U) (\$170) Developed an acceptable useful methodology and process for incorporating desired operational capabilities and results of Fleet Battle Experiments into N6 objectives.
- (U) (\$222) Researched and analyzed the scaleable effects of shipboard radio frequency emitters installed on Aegis cruisers on space-based systems.

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EXHIBIT R-2a, FY 2002 RDT&E,N Project Justification

DATE: JUNE 2001

BUDGET ACTIVITY: 6

PROGRAM ELEMENT: 0605866N

PROJECT NUMBER: R0739

PROGRAM ELEMENT TITLE: SEW Support

PROJECT TITLE: Navy C4I Top Level Requirements

- (U) (\$100) Developed a study group to review Extensible Markup Language (XML) technology and produce options for how to best implement XML as a "smart pull" process to establish a truly "seamless" method of transferring and exchanging data to a variety of systems.

2. (U) FY 2001 PLAN:

- (U) (\$507) Investigate potential benefit of and leveraging capability from continual reduction in chip development prices for DoN.
- (U) (\$465) Support architectural analysis for web-based interaction DON-wide, including considerations to ensure maintenance of appropriate security. Product would be a comprehensive architecture displaying this security, the interfaces, and the functions.
- (U) (\$528) Identify requirements to improve Graphic User Interfaces by using tools to enhance intuitive understanding (i.e., icons and pull down menus) while providing all required capabilities for DON missions/administrative functions.
- (U) (\$29) Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 USC 638.

3. (U) FY 2002 PLAN:

- (U) (\$1,573) Identify requirements, programs and actions which contribute to the development of Navy Space and Electronic Warfare issues and conduct analyses or solutions to problems for current and future scientific projects.

B. (U) PROGRAM CHANGE SUMMARY:

(U) FY 2001 President's Budget:	<u>FY 2000</u>	<u>FY 2001</u>
(U) Appropriated Value:	780	1,543
(U) Adjustments from Presidents Budget:		

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EXHIBIT R-2a, FY 2002 RDT&E,N Project Justification

DATE: JUNE 2001

BUDGET ACTIVITY: 6	PROGRAM ELEMENT: 0605866N	PROJECT NUMBER: R0739
	PROGRAM ELEMENT TITLE: SEW Support	PROJECT TITLE: Navy C4I Top Level Requirements
(U) FY 2000 SBIR Adjustment	-15	
(U) FY 2000 Midyear Review Adjustment	-30	
(U) Congressional Recission	-8	-14
(U) PBD 604 Non-Pay Adjustment		
(U) NWCF Rate Adjustment		
(U) Program Adjustment		
(U) FY 2002 PRESIDENT'S BUDGET Submission:	727	1,529

(U) Schedule: Not applicable.

(U) Technical: Not applicable.

C. (U) OTHER PROGRAM FUNDING SUMMARY: Not applicable.

(U) RELATED RDT&E: Not applicable.

D. (U) SCHEDULE PROFILE: Not applicable.

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EXHIBIT R-2a, FY 2002 RDT&E,N Project Justification

DATE: JUNE 2001

BUDGET ACTIVITY: 6

PROGRAM ELEMENT: 0605866N

PROJECT NUMBER: X0706

PROGRAM ELEMENT TITLE: SEW Support

PROJECT TITLE: EMI Reduction and Radio  
Frequency Management

(U) COST: (Dollars in Thousands)

PROJECT

NUMBER	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	TO	TOTAL
TITLE	ACTUAL	ESTIMATE	ESTIMATE	ESTIMATE	ESTIMATE	ESTIMATE	ESTIMATE	ESTIMATE	COMPLETE	PROGRAM

X0706 EMI Reduction and Radio Frequency Management										
	1,228	1,703	1,860							

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: Electromagnetic Interference (EMI) Reduction and Radio Frequency (RF) Management. This project develops tools to identify and reduce EMI sources from Navy systems and platforms. There are several tools under development to identify and reduce EMI through proper use of the electromagnetic spectrum. The Automated Spectrum Planning, Engineering, Coordination, and Tracking System (ASPECTS) is a communications planning and frequency management tool that is used to plan communication links and analyze, allocate, and assign communication and radar frequencies for fleet operations. The Battle Force (BF) EMI Evaluation System (BEES) is an EMI evaluation tool that is used to develop BF Electromagnetic Environmental Effects (E3) criteria inter-platform EM compatibility (EMC) during operations and exercises. Research includes EMI models for phased arrays, development of new communications and planning techniques to avoid EMI, and development of guidance to harmonize commercial EMI practices.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 2000 ACCOMPLISHMENTS:

- (U) (\$710) ASPECTS: Completed development of software plan to integrate the CPM into the Element Management System (EMS) to make the communication plan available for automated C4ISR systems to adapt to the electromagnetic environment. Continue ASPECTS and EMCAP software updates.
- (U) (\$333) BEES: A common operating system version of the analysis software can be run on BEES networked and stand alone machines

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EXHIBIT R-2a, FY 2002 RDT&E,N Project Justification

DATE: JUNE 2001

BUDGET ACTIVITY: 6

PROGRAM ELEMENT: 0605866N

PROJECT NUMBER: X0706

PROGRAM ELEMENT TITLE: SEW Support

PROJECT TITLE: EMI Reduction and Radio  
Frequency Management

- (U) (\$185) Criteria and Test Procedures: Continue to investigate industrial standards (foreign and domestic) for conversion to military standards. Develop new communications planning techniques to avoid EMI.

2. (U) FY 2001 PLAN:

- (U) (\$941) ASPECTS: Develop interfaces for real time use of spectrum into communications and other C4ISR equipment based on the Navy operational EME to find available spectrum automatically to reduce incidences of interference to and from systems.
- (U) (\$464) BEES: Development of generic C4ISR system models. Concentrate development on user utility to run on as many computer platforms and networks as feasible.
- (U) (\$298) Criteria and Test Procedures: Continue to investigate industrial standards (foreign and domestic) for conversion to military standards. Continue to incorporate new communications planning techniques, including phased array antennas.

3. (U) FY 2002 PLAN:

- (U) (\$1,022) CPM and EMCAP: Develop web based applications that tie into not only Navy C4ISR systems but into commercial communication systems being used by the Navy and ensure their operational use is not a source or victim of interference to find available spectrum automatically.
- (U) (\$502) C4I Topside EMC: Due to congested topside environment, develop enhancements to antennas to reduce incidences of interference, and in addition develop models to analyze those enhancements to be repeatable on other platform types.
- (U) (\$336) C4I EMC Criteria : Incorporate commercial systems practices and standards into EMC C4I criteria. Continue to incorporate new communications and radar planning techniques, including phased array antennas.

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EXHIBIT R-2a, FY 2002 RDT&E,N Project Justification

DATE: JUNE 2001

BUDGET ACTIVITY: 6

PROGRAM ELEMENT: 0605866N

PROJECT NUMBER: X0706

PROGRAM ELEMENT TITLE: SEW Support

PROJECT TITLE: EMI Reduction and Radio  
Frequency Management

B. (U) PROGRAM CHANGE SUMMARY:

FY 2000: SBIR Assessment (-\$36K), Miscellaneous Navy Adjustments (-\$377K), Section 8055 Congressional  
Proportionate Rescission (-\$6K).

FY 2001: Section 8086 .7% Pro-Rata Reduction (-\$12K), Government-Wide Rescission PL 106-554, Sec. 1 (-\$4K).

C. (U) OTHER PROGRAM FUNDING SUMMARY:

(U) PE 0702827N, AGSAG 4B7N	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY2006	FY2007
	2,791	764	1,273					

(U) Related RDT&E: Not applicable.

D. (U) ACQUISITION STRATEGY: Not applicable.

E. (U) SCHEDULE PROFILE: Not applicable.

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