CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification | DATE: **February 2005**

APPROPRIATION/BUDGET ACTIVITY
RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-6

R-1 ITEM NOMENCLATURE
0605866N Navy Space and Electronic Warfare (SEW) Support

COST ($ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Total PE Cost	**$3.1**	**$2.9**	**$2.8**	**$3.0**	**$3.0**	**$3.1**	**$3.2**	**$3.3**
0739 Navy C4I Top Level Requirements	**$1.3**	**$1.1**	**$1.0**	**$1.1**	**$1.1**	**$1.1**	**$1.1**	**$1.1**
0706 EMI Reduction and Radio Frequency Mgmt.	**$1.8**	**$1.8**	**$1.9**	**$1.9**	**$2.0**	**$2.0**	**$2.1**	**$2.1**
Quantity of RDT&E Articles								

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

Project 0739, Navy C4I Top Level Requirements - Provides analysis of both Fleet requirements and research and development technology, to develop top level plans for Navy Communications, Command, Control, Communication, Computer Intelligence (C4I), and space systems in the Space and Electronic Warfare mission area.

Project 0706, 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.

R-1 SHOPPING LIST - Item No. 157

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification									DATE: **February 2005**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-6**	PROGRAM ELEMENT NUMBER AND NAME 0605866N Navy Space and Electronic Warfare (SEW) Suppo				PROJECT NUMBER AND NAME 0739 Navy C4I Top Level Requirements						
COST ($ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	Cost to Complete	Total	Total
Project Cost	**$1.299**	**$1.066**	**$0.970**	**$1.096**	**$1.054**	**$1.091**	**$1.116**	**$1.146**	**Continuing**		

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

This project provides analysis of both Fleet requirements and research and development technology, to develop top level plans and space systems in the Space and Electronic Warfare (SEW) mission area. The Space and Electronic Warfare Studies and Analysis (SEWSAP) program supports analyses of Fleet requirements and research and development technology to develop top-level plans for operating Navy Command, Control, Communications, Intelligence, Surveillance and Reconaissance (C4ISR) and space systems in the Space and Electronic Warfare (SEW) mission area.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2005**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-6	0605866N Navy Space and Electronic Warfare (SEW) Suppo	0739 Navy C4I Top Level Requirements

(U) B. Accomplishments/Planned Program

	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	1.299	1.066	0.970	1.096
RDT&E Articles Quantity				

(U) FY 2004
• Studies supported resource and requirement decisions in the Planning, Programming, and Budgeting System; FORCEnet Fleet experiments; FORCEnet Architecture selection; evaluation of Tactics, Techniques, and Procedures (TTP); alignment of Science and Technology (S&T) and Research, Development, Test, and Evaluation (RDT&E) efforts with FORCEnet requirements; and evaluation and selection of Modeling and Simulation (M&S) tools and scenarios. SEWSAP (1) applied previously-developed models and analytic methods to identify areas of highest sensitivity in Command, Control, Communications (C3) performance, (2) extended previous architectural work on Naval operational functions and networks to detailed analyses of C3 and network requirements and, (3) extended previous system engineering results to newly emerging implementation issues.
(U) FY 2005 through FY 2007
• Conduct analyses of C4ISR and network performance to identify areas of greatest transformational impact on C4ISR performance and newly emerging capabilities and implementation issues.

R-1 SHOPPING LIST - Item No. 157

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2005**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-6	0605866N Navy Space and Electronic Warfare (SEW) Support	0739 Navy C4I Top Level Requirements

(U) C. PROGRAM CHANGE SUMMARY:

(U) Funding:	FY 2004	FY 2005	FY 2006	FY 2007
Previous President's Budget: (FY 05 Pres Controls)	1.361	1.083	1.071	1.204
Current BES/FY06/07 President's Budget:(FY06/07 President's Controls)	1.299	1.066	0.97	1.096
Total Adjustments	-0.062	-0.017	-0.101	-0.108
Summary of Adjustments				
SBIR transfer	-0.037			
Programmatic Adjustments	-0.025	-0.017	0.005	0.005
Subtotal	-0.062	-0.017	0.005	0.005

(U) Schedule:

Not Applicable

(U) Technical:

Not Applicable.

R-1 SHOPPING LIST - Item No. 157

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: **February 2005**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-6**	PROGRAM ELEMENT NUMBER AND NAME 0605866N Navy Space and Electronic Warfare (SEW) Support	PROJECT NUMBER AND NAME 0706 EMI Reduction and Radio Frequency Management	

COST ($ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Cost	**$1.783**	**$1.841**	**$1.859**	**$1.909**	**$1.975**	**$2.026**	**$2.081**	**$2.127**
RDT&E Articles Qty								

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

Electromagnetic Interference (EMI) Reduction and Radio Frequency (RF) Management. This project develops tools, processes, and algorithms to identify and reduce EMI sources for Navy systems and platforms. There are several efforts under development to identify and reduce EMI through proper use of the electromagnetic spectrum. Automated capabilities will be developed that reflect research into new operational fleet battle group frequency management processes. They reflect current fleet needs for a communications planning and frequency management tool used to plan communication links and analyze, allocate, and assign communication and radar frequencies for fleet operations. Research also includes EMI models for phased arrays, development of new analysis techniques and technologies to avoid EMI, and development of guidance to harmonize commercial EMI practices.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2005**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-6	0605866N SEW Support	0706 EMI Reduction and Radio Frequency Management

(U) B. Accomplishments/Planned Program

	FY 04	FY 05	FY 06	FY 07
AESOP (Integrated CPM and EMCAP)	0.892	0.921	1.198	1.222
RDT&E Articles Quantity				

(U) FY 2004
Developed applications that reside on the afloat computer infrastructure used by the Navy. The software is used for frequency planning to ensure operational use of any electromagnetic emitting systems are not a source or victim of interference. Afloat EM Spectrum Operations Program (AESOP) is an integration of the Communications Planning Module (CPM) for communications planning and Electromagnetic Compatibility Analysis Program (EMCAP) for radar and weapon systems frequency planning. This integration was done per fleet requirement and to support the FORCEnet concept of dynamic management and use of C4ISR resources.
(U) FY 2005 - FY2007
Develop interfaces for AESOP, and other automated tools to interface with evolving network protocols and to ensure currency for web based applications. Develop new algorithms for automated tools for new Navy C4ISR systems for both government and commercial communication systems being used by the Navy.

	FY 04	FY 05	FY 06	FY 07
Automated Tools	0.143	0.147	0.661	0.687
RDT&E Articles Quantity				

(U) FY 2004
Developed algorithms and conceptual models to support EMI reduction. An engineering concept was developed and evaluated for current probe technology to replace legacy HF antennas and thereby reduce interference effects.
(U) FY 2005
Develop a multi band approach for current probe technology for multiple frequencies (HF, VHF, and UHF) that would eliminate many of those legacy antennas and has the potential to drastically reduce shipboard interference effects.
(U) FY 2006 - FY2007
Conduct research, development, testing, evaluation (RDTE), verification, validation, and assessment (VV&A) of afloat spectrum management software and automated tools for all US Navy surface ships and shore commands.

R-1 SHOPPING LIST - Item No. 157

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2005**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-6	0605866N SEW Support	0706 EMI Reduction and Radio Frequency Management

(U) B. Accomplishments/Planned Program

	FY 04	FY 05	FY 06	FY 07
EMC	0.481	0.497	0.000	0.000
RDT&E Articles Quantity				

(U) FY 2004 - FY 2005
Continue development of models to analyze antenna enhancements, and research the interference for below decks emitters such as wireless LANs to the topside and below decks environments. Research new technology efforts related to spectrum usage implementation of advanced capabilities that foster the implementation of cutting edge capabilities. Due to congested topside environment, develop recommended enhancements to antennas to reduce incidences of interference.

	FY 04	FY 05	FY 06	FY 07
EMC Criteria	0.267	0.276	0.000	0.000
RDT&E Articles Quantity				

(U) FY 2004
C4I EMC Criteria : Incorporated commercial systems practices and standards into Electromagnetic Compatibility (EMC) C4I criteria and incorporated into Navy practices.
(U) FY 2005
Assist battle group staffs and COCOMs in developing frequency management process improvements. Institutionalize frequency management process for operational fleet by developing procedures that can be utilized by all Navy battle groups.

R-1 SHOPPING LIST - Item No. 157

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2005**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-6	0605866N SEW Support	0706 EMI Reduction and Radio Frequency Management

(U) C. PROGRAM CHANGE SUMMARY:

(U) Funding:	FY 2004	FY 2005	FY 2006	FY 2007
FY05 President's Budget:	1.826	1.858	1.904	1.946
Current BCP/FY06 President's Budget	1.783	1.841	1.859	1.909
Total Adjustments	-0.043	-0.017	-0.045	-0.037
Summary of Adjustments				
SBIR transfer	-0.019			
Programmatic Adjustments	-0.024	-0.017	-0.045	-0.037
Subtotal	-0.043	-0.017	-0.045	-0.037

(U) Schedule:

Not Applicable

(U) Technical:

Not Applicable

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2005**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-6	0605866N SEW Support	0706 EMI Reduction and Radio Frequency Management

(U) D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Complete	Total Cost
Not Applicable										

(U) E. ACQUISITION STRATEGY: *

Not Applicable

(U) F. MAJOR PERFORMERS:

PERFORMER/RECIPIENT	CITY & STATE	BRIEF DESCRIPTION OF WORK	AWARD DATE
NSWC Dahlgren	Dahlgren, VA	Joint E3 Analysis Tool, EMCAP Validation, AESOP Support	Various
Sentel	Alexandria, VA	Automated Tools Development	Various
SSC-SD	San Diego, CA	Topside Design /EMC	Various

*** Not required for Budget Activities 1,2,3, and 6**

R-1 SHOPPING LIST - Item No. 157