Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Navy											DATE: April 2013	
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 6: *RDT&E Management Support*					R-1 ITEM NOMENCLATURE PE 0605866N: *Navy Space & Electr Warfare Supt*							
COST ($ in Millions)	**All Prior Years**	**FY 2012**	**FY 2013#**	**FY 2014 Base**	**FY 2014 OCO ##**	**FY 2014 Total**	**FY 2015**	**FY 2016**	**FY 2017**	**FY 2018**	**Cost To Complete**	**Total Cost**
Total Program Element	0.000	4.152	9.779	3.265	-	3.265	4.406	4.172	4.285	4.342	Continuing	Continuing
0706: *EMC & RF Mgmt*	0.000	3.551	9.192	2.912	-	2.912	3.975	4.171	4.283	4.342	Continuing	Continuing
0739: *Navy C2 Top Level*	0.000	0.601	0.587	0.353	-	0.353	0.431	0.001	0.002	0.000	0.000	1.975

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

Project 0706, Electromagnetic Compatibility (EMC) and Radio Frequency (RF) Management Program: Develops advanced technology to identify and eliminate Electromagnetic Interference (EMI) sources from Navy systems. Supports research and development technology efforts, develops top-level plans, and supports systems in the Space and Electronic Warfare (SEW) mission area.

Overseas Contingency Operations (OCO) Request: Combat Enabler for Operation Enduring Freedom - Afghanistan (OEF-A) during FY2013 and Operation Enduring Freedom - In Theater (OEF-T) during FY2014. Joint Emitters during the continuing OCO operations was a source of debilitating electromagnetic interference to critical United States Navy (USN) Air Operations (OPS) and Ballistic Missile Defense (BMD) assets.

In-Theater and Pre-Deployment OEF-A and OEF-T: Will address impact of upgrades to deploying ships and development of electromagnetic interference solutions for the deploying strike group.

Project 0739, Navy Command, Control, Communications, Computers, and Intelligence (C4I) Top Level Requirements - 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 Program (SEWSAP) supports analyses of fleet requirements and research and development technology to develop top-level plans for operating Navy Command, Control, Communications, Intelligence, Surveillance and Reconnaissance (C4ISR) and space systems in the SEW mission area.

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Navy					DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 6: *RDT&E Management Support*			R-1 ITEM NOMENCLATURE PE 0605866N: *Navy Space & Electr Warfare Supt*		
B. Program Change Summary ($ in Millions)	**FY 2012**	**FY 2013**	**FY 2014 Base**	**FY 2014 OCO**	**FY 2014 Total**
Previous President's Budget	4.223	4.579	4.605	-	4.605
Current President's Budget	4.152	9.779	3.265	-	3.265
Total Adjustments	-0.071	5.200	-1.340	-	-1.340
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.071	0.000			
• Program Adjustments	0.000	0.000	-0.174	-	-0.174
• Rate/Misc Adjustments	0.000	5.200	-1.166	-	-1.166

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 6: *RDT&E Management Support*	R-1 ITEM NOMENCLATURE PE 0605866N: *Navy Space & Electr Warfare Supt*	PROJECT 0706: *EMC & RF Mgmt*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
0706: *EMC & RF Mgmt*	0.000	3.551	9.192	2.912	-	2.912	3.975	4.171	4.283	4.342	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0		0	0	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

Electromagnetic Compatibility (EMC) and Radio Frequency (RF) Management Program. This project develops tools, processes, and algorithms to identify and mitigate EMI sources for Navy systems and platforms.

(a) It will support the Afloat Electromagnetic Spectrum Operations Program (AESOP), an automated spectrum Fleet operational capability. The application will be enhanced to comply with fleet operational requirements and streamline Strike Force frequency management processes. It will provide automated Spectrum Management (SM) tools for development of operational task communication and radar/weapon plans to support fleet deployments, exercises, and contingency operations. It will provide identification and mitigation of EMI in Navy, North Atlantic Treaty Organization (NATO), Allied, Ashore and Joint Combat Operations.

(b) It will support the Shipboard Electromagnetic Compatibility Improvement Program (SEMCIP) to identify, engineer, and evaluate effectiveness of potential EMI corrections. The program also characterizes and quantifies the operational impact of EMI problems on system's mission performance.

(c) It will support the Nuclear Electromagnetic Pulse (EMP) Survivability Program. The program assesses the EMP survivability of all mission critical systems and funds development of a hardness assurance and maintenance program. It will develop improved modeling capability to reduce hardness validation costs at delivery and over the lifetime of the system/platform. The program provides design criteria, test methodology, test limits, and survivability validation procedures for all Navy systems, ships, submarines and shore facilities.

(d) It will support Advanced Technology Concepts. The program investigates below deck electromagnetic environmental effects. It also develops the capability to perform remote spectrum and electromagnetic noise monitoring. The program develops the tools and technologies for innovative and efficient spectrum use, and continues the development of relationships between measured EMI and system performance for selected communications systems.

(e) Overseas Contingency Operations (OCO) Request: Combat Enabler for Operation Enduring Freedom - Afghanistan (OEF-A) during FY2013 and Operation Enduring Freedom - In Theater (OEF-T) during FY2014. Joint Emitters during the continuing OCO operations is a source of debilitating electromagnetic interference to critical United States Navy (USN) Air Operations (OPS) and Ballistic Missile Defense (BMD) assets. In-Theater and Pre-Deployment OEF-A and OEF-T: Will address impact of upgrades to deploying ships and development of electromagnetic interference solutions for the deploying strike group.

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 6: *RDT&E Management Support*	R-1 ITEM NOMENCLATURE PE 0605866N: *Navy Space & Electr Warfare Supt*	PROJECT 0706: *EMC & RF Mgmt*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: Afloat Electromagnetic Spectrum Operations Program (AESOP)	0.700	0.692	0.558
Articles:	0	0	0
FY 2012 Accomplishments: Issued AESOP v3.0, to all Fleet operational units (both afloat and ashore commands). AESOP 3.0 developed integrated Radar and Communications plans for navy operations, provided a more complete common operational picture (COP) of spectrum use for combat systems, communication systems, electronic warfare, and navigation aids in the presence of civilian and allied systems. Issued an update to the Electromagnetic Compatibility Criteria for Navy Systems, Revision 3 and distributed to fleet. Updated AESOP worldwide operational spectrum restrictions. Supported the National Broadband Plan, provided analysis capability that supported National Level recommendations, and updated spectrum radiation restrictions. ***FY 2013 Plans:*** Update the AESOP application requirements for version 4.0 to encompass NATO/Coalition/National Spectrum requirements and coordinate with all naval commands. Continue to support the National Broadband Plan, provide analysis capability to support National Level recommendations, and update spectrum radiation restrictions. ***FY 2014 Plans:*** Issue the next version update of the Fleet's operational spectrum management program, AESOP (v4.0) to encompass NATO/ Coalition/National Spectrum requirements and issue to all naval commands. Continue to support the National Broadband Plan, provide analysis capability to support National Level recommendations, and update spectrum radiation restrictions.			
Title: EMC Systems Engineering (SEMCIP)	1.030	1.000	0.832
Articles:	0	0	0
FY 2012 Accomplishments: Provided engineering, analytical and technical support to achieve electromagnetic compatibility (EMC) between various shipboard/ submarine electronic systems and/or equipment. Developed and evaluated electromagnetic interference EMI fixes intended to mitigate interference among and between shipboard electronic/electric systems and/or equipment. Specifically developed and evaluated EMI fixes for interference between radar-to-radars, and between Satellite Communications (SATCOM) to Electronic Warfare (EW) systems. ***FY 2013 Plans:*** Support efforts to identify and characterize EMI which can debilitate the combat capability of strike force capability and operational readiness. Focus in on the Navy's Air and Missile Defense Radar (AMDR) program and consolidated SATCOM/Communication stacked antenna technology. Evaluate the effectiveness of proposed EMI solutions and coordinate for integration/procurement of final EMI fix. ***FY 2014 Plans:***			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 6: *RDT&E Management Support*	R-1 ITEM NOMENCLATURE PE 0605866N: *Navy Space & Electr Warfare Supt*	PROJECT 0706: *EMC & RF Mgmt*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Continue efforts to identify and characterize EMI which can debilitate the combat capability of strike force capability and operational readiness. Focus in on the Navy's Next Generation Radar, EW and SATCOM programs. Evaluate the effectiveness of proposed EMI solutions and coordinate for integration/procurement of final EMI fix.			
Title: Electromagnetic Pulse (EMP) Survivability	0.979	1.200	0.848
Articles:	0	0	0
FY 2012 Accomplishments: Continued efforts in the development of a Maritime EMP Standard (new STD has been designated as MIL-STD-4023). Acquired an x-US Coast Guard Cutter, Monhegan (WPB-1305), and performed shipboard testing that collected required parametric information that supported maritime standard. Supported development of new technologies to harden ashore sites and mission critical systems from a nuclear blast. Investigated and developed a new Cable Shield Ground Adapter (CSGA) that could ultimately save the US Navy millions of dollars in hardware maintenance costs while providing increased shielding capabilities.			
FY 2013 Plans: Complete Maritime EMP Standard (MIL-STD-4023) and issue to Navy commands. Investigate capabilities to improve shipboard corrosion resistance and ensure reduced life cycle costs of EMP hardening materials. Develop improved modeling capability to reduce hardness validation costs at ship delivery and over the lifetime of the system and platforms.			
FY 2014 Plans: Investigate the development of mobile EMP testing capability. This becomes especially important when a critical facility or system is in a remote region or too large to transport. Mobile test systems would be composed of both radiating systems required for radiated susceptibility testing and pulse current injection systems required for conductive susceptibility testing. In addition, investigate potential upgrades to the Naval Surface Warfare Center Dahlgren Division (NSWCDD) Naval Ordinance Transient Electromagnetic Simulator (NOTES) EMP Facility (ashore test bed).			
Title: Advanced Technology	0.842	1.100	0.674
Articles:	0	0	0
FY 2012 Accomplishments: Demonstrated the ability to control the Electromagnetic (EM) Spectrum outputs of various Navy communications equipment at a land-based test site. Researched spectrum efficiency capabilities to allow radars and communication systems to operate compatibly in the EM battle space. Developed a dynamic spectrum operations schema to collect information from spectrum dependent systems and allocate the electromagnetic spectrum - on the fly - mitigating electromagnetic interference.			
FY 2013 Plans: Demonstrate the capability to monitor EM spectrum usage on a ship and/or strike group. Develop a process to provide a shared common operational picture (COP) of EM Spectrum usage and requirements. Demonstrate the capability to manage shipboard			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 6: *RDT&E Management Support*	R-1 ITEM NOMENCLATURE PE 0605866N: *Navy Space & Electr Warfare Supt*	PROJECT 0706: *EMC & RF Mgmt*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
systems EM parameters to avoid electromagnetic Interference. Publish Phase 2 of the Information Dominance Roadmap, detailing total ownership costs, and refine the action plan to identify top level Navy investments that will enable a leap-forward to provide real-time spectrum operations. ***FY 2014 Plans:*** Expand the capability to monitor EM spectrum usage on all ships in a given strike group. Enhance the EM Spectrum COP to provide layers of data displays for levels of command. Investigate the acquisition processes and procedures, and architecture protocols to support the new schema, and issue to industry for review and comment. Publish new governance and standards to ensure new systems are developed with the correct interfaces to allow proper spectrum control.			
Title: Overseas Contingency Operations (OCO) ***Articles:*** ***FY 2013 Plans:*** (a) Joint Emitters during Overseas Contingency Operations is a source of debilitating Electromagnetic Interference (EMI) to critical air operations and BMD assets. Funding will be used to expand afloat and ashore spectrum management tools to address the critical need for interoperability. USN/USMC integration promotes interoperability with the multi-national deployed forces fighting the OCO and decreases the risk of friendly fire incidents. Increased situational awareness, reduction of interference, and restored mission capability are all expected benefits of the improved processes and procedures. The requested funds will deliver a Joint capability system that allows group planning and execution, information data discovery, data interoperability, and data fusion to USN and USMC forces directly supporting OCO OPS. (AESOP=$2.2M) (b) Develops advanced technology to identify and reduce EMI sources from Navy systems and platforms. Supports both In-Theater & Pre-Deployment support. Funding to address actions taken to restore units to a desired level of combat capability. Upgrades to deploying ships and development of EMI solution for the deploying strike group. This funding will be used to evaluate and mitigate potential EMI problems that may be introduced as the fleet continues to field additional variants of combat systems and commission new ships. Timely development of EMI solutions restores combat capability lost due to EMI. Evaluation of short-term and long-term EMI fix evaluation on deploying ships is required to determine optimum EMI solution. (SEMCIP=$3.0M)	0.000	5.200 0	0.000
Accomplishments/Planned Programs Subtotals	3.551	9.192	2.912

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
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D. Acquisition Strategy

An acquisition strategy is not required.

E. Performance Metrics

Performance metrics will consist of quarterly program reviews.

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 6: *RDT&E Management Support*	R-1 ITEM NOMENCLATURE PE 0605866N: *Navy Space & Electr Warfare Supt*	PROJECT 0739: *Navy C2 Top Level*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
0739: *Navy C2 Top Level*	0.000	0.601	0.587	0.353	-	0.353	0.431	0.001	0.002	0.000	0.000	1.975
Quantity of RDT&E Articles	0	0	0	0		0	0	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

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 Program (SEWSAP) supports analyses of Fleet requirements and research and development technology to develop top-level plans for operating Navy Command, Control, Communications, Intelligence, Surveillance and Reconnaissance (C4ISR) and space systems in the SEW mission area.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: Navy C2 Top Level	0.601	0.587	0.353
Articles:	0	0	0

Description: FY14 funding decrease is due to programmatic realignments to other Navy priorities.

FY 2012 Accomplishments:

- Initiated and completed studies supporting resource and requirement decisions in the Planning, Programming, and Budgeting Execution (PPBE) 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; evaluation and selection of Modeling and Simulation (M&S) tools and scenarios.

SEWSAP (1) applied previously-developed models and analytical methods to identify areas of highest sensitivity in Command, Control, Communications (C3) performance, (2) extend previous architectural work on Naval operational functions and networks to detailed analyses of C3 and network requirements and, (3) extend previous system engineering results to newly emerging implementation issues.

- Initiated studies supporting resource and requirement decisions in the PPBE System. Conduct FORCEnet/Information Dominance Fleet experiments; FORCEnet/Information Dominance Architecture selection; evaluation of TTP and Research,

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Development, Test, and Evaluation (RDT&E) efforts with FORCEnet/Information Dominance requirements. Begin evaluation of M&S tools and scenarios. ***FY 2013 Plans:*** - Continue to initiate and complete studies supporting resource and requirement decisions in the PPBE System. Conduct FORCEnet/Information Dominance Fleet experiments; FORCEnet/Information Dominance Architecture selection; evaluation of TTP and Research, Development, Test, and Evaluation (RDT&E) efforts with FORCEnet/Information Dominance requirements. Begin evaluation of M&S tools and scenarios. ***FY 2014 Plans:*** - Continue to initiate and complete studies supporting resource and requirement decisions in the PPBE System. Conduct FORCEnet/Information Dominance Fleet experiments; FORCEnet/Information Dominance Architecture selection; evaluation of TTP and Research, Development, Test, and Evaluation (RDT&E) efforts with FORCEnet/Information Dominance requirements. Begin evaluation of M&S tools and scenarios.			
Accomplishments/Planned Programs Subtotals	0.601	0.587	0.353

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

An acquisition strategy is not required.

E. Performance Metrics

Conduct studies and report plans and analysis of Fleet requirements for operating Navy C4ISR and space systems in the space, electronic warfare, and information dominance mission areas.