Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Navy											DATE: April 2013	
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *System Development & Demonstration (SDD)*					R-1 ITEM NOMENCLATURE PE 0604501N: *Advanced Above Water Sensors*							
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	703.233	239.122	255.516	275.871	-	275.871	236.157	260.802	97.857	94.420	Continuing	Continuing
3186: *Air and Missile Defense Radar*	547.023	148.612	223.621	240.132	-	240.132	205.085	235.124	73.351	69.541	Continuing	Continuing
3187: *Periscope Detection*	33.704	21.711	1.730	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	57.145
3188: *Dual-Band Radar*	34.151	21.008	12.042	18.893	-	18.893	14.281	8.434	6.997	7.102	Continuing	Continuing
3232: *Multi-Mission Signal Processor*	84.874	23.282	14.617	14.795	-	14.795	15.856	16.290	16.545	16.797	Continuing	Continuing
3301: *Improved Capabilities SPY-1 Radar*	3.481	4.509	3.506	2.051	-	2.051	0.935	0.954	0.964	0.980	Continuing	Continuing
9999: *Congressional Adds*	0.000	20.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	20.000
MDAP/MAIS Code(s): P384												

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

Air and Missile Defense Radar (AMDR): The AMDR suite is being developed to fulfill Integrated Air and Missile Defense requirements for multiple ship classes. This suite consists of an S-Band radar (AMDR-S), an X-band radar and a Radar Suite Controller (RSC). Funding in FY 13-18 will develop AMDR-S and RSC, and integrate these components with an available X band radar. AMDR will provide multi-mission capabilities, simultaneously supporting both long range, exoatmospheric detection, tracking and discrimination of ballistic missiles, as well as Area and Self Defense against air and surface threats. For the Ballistic Missile Defense capability, increased radar sensitivity and bandwidth over current radar systems are needed to detect, track and support engagements of advanced ballistic missile threats at the required ranges, concurrent with Area and Self Defense against Air and Surface threats. For the Area Air Defense and Self Defense capability, increased sensitivity and clutter capability is needed to detect, react to, and engage stressing Very Low Observable/Very Low Flyer (VLO/VLF) threats in the presence of heavy land, sea, and rain clutter. This effort provides for the development of an active phased array radar with the required capabilities to address the evolving threat. The AMDR suite will obtain performance and technology enhancements throughout its service life based upon an approach that includes modularity of hardware and software, a scalable design and Open Architecture (OA) compliance.

Periscope Detection: The CVN Periscope Detection Radar program, AN/SPS-74(V), develops and delivers the capability which provides automated detection and discrimination of submarine periscopes using advanced algorithms. This enables discrimination of periscopes from surface contacts, buoys, small boats, floating mines, etc. This effort was initially based on an Advanced Development Model (ADM), developed in PE 0603553N, Surface Antisubmarine Warfare. VCNO

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Navy	DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *System Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604501N: *Advanced Above Water Sensors*

Memorandum Ser N09/12U100544 dtd 17 Dec, 2012 directs cancellation of the AN/SPS-74 Program. FY12 and FY13 funding will develop the Periscope Detection and Discrimination (PDD) interface for the AN/SPQ-9B Radar.

Dual Band Radar (DBR) Upgrades: Funding is for Dual Band Radar (DBR) System upgrades to implement cost savings initiatives for Volume Search Radar (VSR) modifications, supportability analysis and associated logistics product updates; future upgrades/technology insertion efforts for Multi-Function Radar (MFR)/VSR as a part of the DBR suite on CVN 78 Class ships and the MFR on DDG 1000 Class ships. Funding is also required to resolve the hardware and software issues discovered during the various test events to include: DTB2-411, SDTS testing, Land Based Testing and pertinent At-Sea test events. The upgrades will include all aspects of the radar system/subsystems, including hardware and software. Specific subsystem areas include the Array, Transmit/Receive (T/R) module, Receiver/ Exciter, Signal Data Processor, Radome, and power/cooling systems. Upgrades and technology insertions are required to maintain the level of force protection needed for ship defense against all threats envisioned in the littoral environment. The supportability analysis and logistic products associated with these upgrades will also be developed and updated. DBR Battle Force Tactical Trainer (BFTT)/Cooperative Engagement Capability (CEC)/Surface Electronic Warfare Improvement Program (SEWIP) Interface: FY12-14 requirement supports the design and development of the software interface between DBR and AN/USQ-46 BFTT, CEC and SEWIP to enhance CVN 78 combat readiness. The contract award is planned for FY12 and continues with validation testing in FY14. DBR CVN 78 Testing and Certification: FY12-FY17 requirement supports DBR At-Sea Test and Evaluation (T&E), Environmental Testing and DBR Systems Certification for CVN 78.

Multi-Mission Signal Processor (MMSP): The development of Multi-Mission Signal Processor (MMSP) provides Anti-Air Warfare (AAW)/Ballistic Missile Defense (BMD) Multi-mission capability for DDG 51 class ships as part of Aegis Modernization Program. This capability will be utilized for DDG 113 and follow new construction and Aegis Ashore. Modifies SPY-1D Transmitters to enable dual beam for reduced frame times and better reaction time, and provides stability for all D (V) waveforms and avoid operational degradation. The SPY-1 radar system detects, tracks and supports engagements of a broader range of threats. MMSP improves performance in littoral, ducted clutter environments, and in electronic attack (EA), and chaff environments and provides greater commonality in computer programs and equipment. This effort also provides for the development of a Solid State Switch Assembly (SSSA) through an ONR/MANTECH project, MMSP Commercial Off-The-Shelf (COTS) refresh, radar capability upgrades, reliability improvements, and ship-based Non-Cooperative Target Recognition (NCTR).

Improved Capabilities for SPY-1 Radar: These Reliability, Maintainability, and Availability (RM&A) improvements are intended to reduce cascading failures, mitigate obsolescence issues, and improve reliability in support of Anti-Air Warfare (AAW) and Ballistic Missile Defense (BMD) missions; while still providing AN/SPY-1 Radar Total Ownership Cost Reductions. Improvements will yield reductions in annual fleet maintenance costs.

Advanced Radar Innovation Fund: Funds the development and integration of existing and new technologies into the Navy's sensors to enhance performance and ensure sensor operations and sustainment throughout the lifecycle of the sensor and platforms on which installed.

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Navy	DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *System Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604501N: *Advanced Above Water Sensors*

B. Program Change Summary ($ in Millions)	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total
Previous President's Budget	247.071	255.516	388.654	-	388.654
Current President's Budget	239.122	255.516	275.871	-	275.871
Total Adjustments	-7.949	0.000	-112.783	-	-112.783
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-2.535	0.000			
• SBIR/STTR Transfer	-5.414	0.000			
• Program Adjustments	0.000	0.000	-109.236	-	-109.236
• Rate/Misc Adjustments	0.000	0.000	-3.547	-	-3.547

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2012	FY 2013
Project: 9999: *Congressional Adds*		
Congressional Add: *Adv Radar Innovation Fund - Surf (Cong)*	20.000	-
Congressional Add Subtotals for Project: 9999	20.000	0.000
Congressional Add Totals for all Projects	20.000	0.000

Change Summary Explanation

Technical: Removed AMDR X-Band Radar E&MD effort
Schedule: Not Applicable
Cost: Removed AMDR X-Band Radar E&MD effort

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *System Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604501N: *Advanced Above Water Sensors*	PROJECT 3186: *Air and Missile Defense Radar*	

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
3186: *Air and Missile Defense Radar*	547.023	148.612	223.621	240.132	-	240.132	205.085	235.124	73.351	69.541	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

Air and Missile Defense Radar (AMDR): The AMDR suite is being developed to fulfill Integrated Air and Missile Defense requirements for multiple ship classes. This suite consists of an S-Band radar (AMDR-S), an X-band radar and a Radar Suite Controller (RSC). Funding in FY 13-18 will develop AMDR-S and RSC, and integrate these components with an available X band radar. AMDR will provide multi-mission capabilities, simultaneously supporting both long range, exoatmospheric detection, tracking and discrimination of ballistic missiles, as well as Area and Self Defense against air and surface threats. For the Ballistic Missile Defense (BMD) capability, increased radar sensitivity and bandwidth over current radar systems are needed to detect, track and support engagements of advanced ballistic missile threats at the required ranges, concurrent with Area and Self Defense against Air and Surface threats. For the Area Air Defense and Self Defense capability, increased sensitivity and clutter capability is needed to detect, react to, and engage stressing Very Low Observable /Very Low Flyer (VLO/VLF) threats in the presence of heavy land, sea, and rain clutter. This effort provides for the development of an active phased array radar with the required capabilities to address the evolving threat. The AMDR suite will obtain performance and technology enhancements throughout its service life based upon an approach that includes modularity of hardware and software, a scalable design and Open Architecture (OA) compliance.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: R&D/RISK REDUCTION	2.929	0.000	0.000
Articles:	0		
FY 2012 Accomplishments: - Evaluated Gallium Nitride (GaN) High Power Amplifier (HPA) performance, reliability, and producibility improvements - Performed risk reduction activities associated with digital beamforming, array architectures, Transmit/Receive (T/R) modules, thermal management, and Radio Frequency (RF) semiconductors - Conducted critical component and subsystem demonstrations, integration and testing			
Title: SYSTEMS ENGINEERING	140.821	218.616	235.961
Articles:	0	0	0
FY 2012 Accomplishments: - Conducted Preliminary Design Reviews with each TD contractor - Conducted the technology development component and prototype testing			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *System Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604501N: *Advanced Above Water Sensors*	PROJECT 3186: *Air and Missile Defense Radar*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
- Analyzed and reviewed prototype test results - Conducted Technology Readiness Level assessments - Completed Technology Development Phase contracts ***FY 2013 Plans:*** - Achieve successful Milestone B decision and proceed into EMD phase - Award AMDR-S/RSC EMD contract - Mature AMDR design and radar parameters necessary for ship integration - Support EMD Phase Integrated Baseline Review ***FY 2014 Plans:*** - Conduct Delta Hardware and Software Preliminary Design Reviews - Conduct Hardware and Software Critical Design Reviews - Conduct test planning in support of system verification - Develop modeling and simulation tools - Conduct performance analysis in support of system design			
Title: PROGRAM MANAGEMENT SUPPORT	4.862	5.005	4.171
Articles:	0	0	0
FY 2012 Accomplishments: - Provided support to Integrated Product Teams (IPTs) and WGs required for program execution and achievement of Milestone 'B' in FY13 - Assisted in cost, schedule and performance management, contract administration and oversight, risk identification and mitigation - Analyzed and assessed contractor studies - Reviewed available/proposed technical alternatives ***FY 2013 Plans:*** - Achieve successful Milestone B decision and proceed into EMD phase - Provide support to Integrated Product Teams (IPTs) and WGs required for program execution of the EMD contracts - Assist in cost, schedule and performance management, contract administration and oversight, earned value assessment, risk identification and mitigation - Analyze and assess contractor studies - Review available/proposed technical alternatives - Conduct EMD Phase Integrated Baseline Review ***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 5: *System Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604501N: *Advanced Above Water Sensors*	PROJECT 3186: *Air and Missile Defense Radar*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
- Provide support to Integrated Product Teams (IPTs) and WGs required for program execution of the EMD contracts - Analyze and assess contractor deliverables - Conduct regular Program Management Reviews - Assist in cost, schedule and performance management, contract administration and oversight, earned value assessment, risk identification and mitigation			
Accomplishments/Planned Programs Subtotals	148.612	223.621	240.132

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

AMDR: Plans for the Air and Missile Defense Radar are to leverage research and development investments, integrate sufficiently matured fundamental advanced technologies from technology risk reduction efforts, and incorporate Open Architecture approaches to develop a scalable radar design with major improvements in power, sensitivity, resistance to natural and man-made environments over current radar systems for simultaneous multi-mission BMD, Area and Self Defense Anti-Air Warfare (AAW). System design will be accomplished by employing proven technologies and commercial standards to lower schedule risk and develop a product with the lowest life-cycle cost.

Program scope consists of the following phases: a Concept Studies phase; a Technology Development phase which includes competitive prototyping; an EMD phase which includes completion of a full Engineering Development Model (EDM) for land-based testing; and transition to production. The detailed scope of this acquisition is defined in the approved Technology Development Strategy (TDS) and will be updated for Milestone B in the AMDR Acquisition Strategy.

E. Performance Metrics

- Complete Technology Development (TD) phase System Requirements Review, Test Readiness Review, TD Prototype testing, TD System Functional Review, and TD Preliminary Design Review (PDR)
- Achieve Milestone B decision to proceed into EMD phase
- Award/Exercise EMD contracts
- Conduct Delta Hardware / Software PDRs and Hardware / Software Critical Design Reviews (CDRs)
- Complete Engineering Development Model (EDM) Testing
- Achieve Milestone C decision to proceed into production

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *System Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604501N: *Advanced Above Water Sensors*	PROJECT 3186: *Air and Missile Defense Radar*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Risk Reduction	WR	SCSC Wallops:Wallops Island, VA	10.530	0.000		0.000		0.000		-		0.000	0.000	10.530	
Risk Reduction	MIPR	DMEA:McClellen AFB, CA	48.022	0.000		0.000		0.000		-		0.000	0.000	48.022	
Risk Reduction	SS/CPFF	JHU/APL:Baltimore, MD	9.820	0.100	Jan 2012	0.000		0.000		-		0.000	0.000	9.920	
Risk Reduction	MIPR	MIT:Cambridge, MA	2.538	0.000		0.000		0.000		-		0.000	0.000	2.538	
Risk Reduction	WR	NRL:Washington, DC	7.178	0.916	Nov 2011	0.000		0.000		-		0.000	0.000	8.094	
Risk Reduction	C/CPAF	BAE Systems:Rockville, MD	1.980	0.000		0.000		0.000		-		0.000	0.000	1.980	
Risk Reduction	WR	NSWC/CR:Crane, IN	0.000	0.746	Dec 2011	0.000		0.000		-		0.000	0.000	0.746	
Risk Reduction	C/CPFF	SPA-PSS:Alexandria, VA	3.048	0.769	Jan 2012	0.000		0.000		-		0.000	0.000	3.817	
Risk Reduction	WR	NSWC/DD:Dahlgren, VA	6.439	0.000		0.000		0.000		-		0.000	0.000	6.439	
Risk Reduction	MIPR	DARPA:Adelphi, MD	5.484	0.398	Jan 2012	0.000		0.000		-		0.000	0.000	5.882	
Systems Engineering	SS/CPFF	GTRI:Atlanta, GA	5.019	1.722	Jan 2012	0.000		1.713	Dec 2013	-		1.713	Continuing	Continuing	Continuing
Systems Engineering	SS/FFP	BAE Systems:Rockville, MD	9.536	0.000		0.000		0.000		-		0.000	0.000	9.536	
Systems Engineering	Various	VARIOUS-SPECIAL:Special	3.078	0.000		0.000		0.000		-		0.000	0.000	3.078	
Systems Engineering	WR	NSWC/DD:Dahlgren, VA	38.303	12.575	Nov 2011	7.148	Dec 2012	12.935	Dec 2013	-		12.935	Continuing	Continuing	Continuing
Systems Engineering	WR	PMRF:Kekaha, HI	1.375	0.682	Dec 2011	3.989	Dec 2012	10.763	Dec 2013	-		10.763	Continuing	Continuing	Continuing
Systems Engineering	SS/CPFF	JHU/APL:Baltimore, MD	38.725	13.901	Jan 2012	8.697	Feb 2013	13.168	Dec 2013	-		13.168	Continuing	Continuing	Continuing
Systems Engineering	MIPR	MIT:Cambridge, MA	10.445	4.639	Nov 2011	3.536	Dec 2012	4.077	Dec 2013	-		4.077	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *System Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604501N: *Advanced Above Water Sensors*	PROJECT 3186: *Air and Missile Defense Radar*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering	WR	NSWC/PHD:Port Hueneme, CA	6.069	3.389	Nov 2011	6.057	May 2013	4.080	Dec 2013	-		4.080	Continuing	Continuing	Continuing
Systems Engineering	WR	NSWC/CR:Crane, IN	2.449	0.466	Dec 2011	4.145	Jan 2013	2.791	Dec 2013	-		2.791	Continuing	Continuing	Continuing
Systems Engineering	WR	NRL:Washington, DC	3.721	0.783	Nov 2011	2.849	Jan 2013	1.919	Dec 2013	-		1.919	Continuing	Continuing	Continuing
Systems Engineering	C/CPFF	SPA-PSS:Alexandria, VA	9.433	7.911	Jan 2012	2.147	Apr 2013	5.705	Dec 2013	-		5.705	Continuing	Continuing	Continuing
Systems Engineering	WR	COMPTEVFOR:Norfolk, VA	0.446	0.331	Jan 2012	0.337	May 2013	0.227	Dec 2013	-		0.227	Continuing	Continuing	Continuing
Systems Engineering	C/FFP	CS-Northrop Grumman:Linthicum Heights, MD	10.000	0.000		0.000		0.000		-		0.000	0.000	10.000	
Systems Engineering	C/FFP	CS-Lockheed Martin:Moorestown, NJ	10.000	0.000		0.000		0.000		-		0.000	0.000	10.000	
Systems Engineering	C/FFP	CS-Raytheon:Sudbury, MA	9.909	0.000		0.000		0.000		-		0.000	0.000	9.909	
Systems Engineering	WR	NSWC/PHD (VAB):Virginia Beach, VA	0.730	0.000		0.000		0.000		-		0.000	0.000	0.730	
Systems Engineering	C/FP	Program Office System Engineering Staff:Washington, DC	1.855	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Systems Engineering	SS/CPFF	INTEGRITS (via KRATOS):San Diego, CA	0.149	0.000		0.000		0.000		-		0.000	0.000	0.149	
Systems Engineering	WR	NAWC AD:Patuxent River, MD	0.000	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Systems Engineering	WR	SCSC Wallops:Wallops Island, VA	0.037	0.049	Jan 2012	0.111	May 2013	0.075	Dec 2013	-		0.075	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *System Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604501N: *Advanced Above Water Sensors*	PROJECT 3186: *Air and Missile Defense Radar*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering	WR	SPAWAR:San Diego, CA	0.028	0.025	Dec 2011	0.201	May 2013	0.135	Dec 2013	-		0.135	0.000	0.389	
Systems Engineering	C/FPIF	TD Contractor Raytheon:Sudbury, MA	89.751	29.009	Oct 2011	0.000		0.000		-		0.000	0.000	118.760	
Systems Engineering	WR	NAVFAC MID-ATLANTIC:Pearl Harbor, HI	4.026	0.000		0.000		0.000		-		0.000	0.000	4.026	
Systems Engineering	C/FPIF	TD Contractor Northrop Grumman:Linthicum Heights, MD	89.751	30.249	Oct 2011	0.000		0.000		-		0.000	0.000	120.000	
Systems Engineering	C/FPIF	TD Contractor Lockheed Martin:Moorestown, NJ	89.751	30.249	Oct 2011	0.000		0.000		-		0.000	0.000	120.000	
Systems Engineering	MIPR	ARL:Adelphi, MD	0.206	0.239	Jan 2012	0.755	May 2013	0.508	Dec 2013	-		0.508	Continuing	Continuing	Continuing
Systems Engineering	C/CPIF	TBD-AMDR-S/RSC EMD:Not Specified	0.000	0.000		172.776	May 2013	176.496	Dec 2013	-		176.496	Continuing	Continuing	Continuing
Systems Engineering	WR	NAWC WD:Pt. Mugu, CA	0.501	3.806	Dec 2011	5.868	May 2013	0.563	Dec 2013	-		0.563	0.000	10.738	
Systems Engineering	WR	NSWC. CD:Carderock, MD	0.000	0.256	Jan 2013	0.000		0.383	Dec 2013	-		0.383	0.000	0.639	
Systems Engineering	C/FFP	Alion Science:Washington, DC	0.000	0.540	Feb 2013	0.000		0.423	Dec 2013	-		0.423	0.000	0.963	
		Subtotal	530.332	143.750		218.616		235.961		0.000		235.961			

Remarks

AMDR-S/RSC Engineering and Manufacturing Development contract has not yet been awarded, therefore 'Performer' TBD.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *System Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604501N: *Advanced Above Water Sensors*	PROJECT 3186: *Air and Missile Defense Radar*

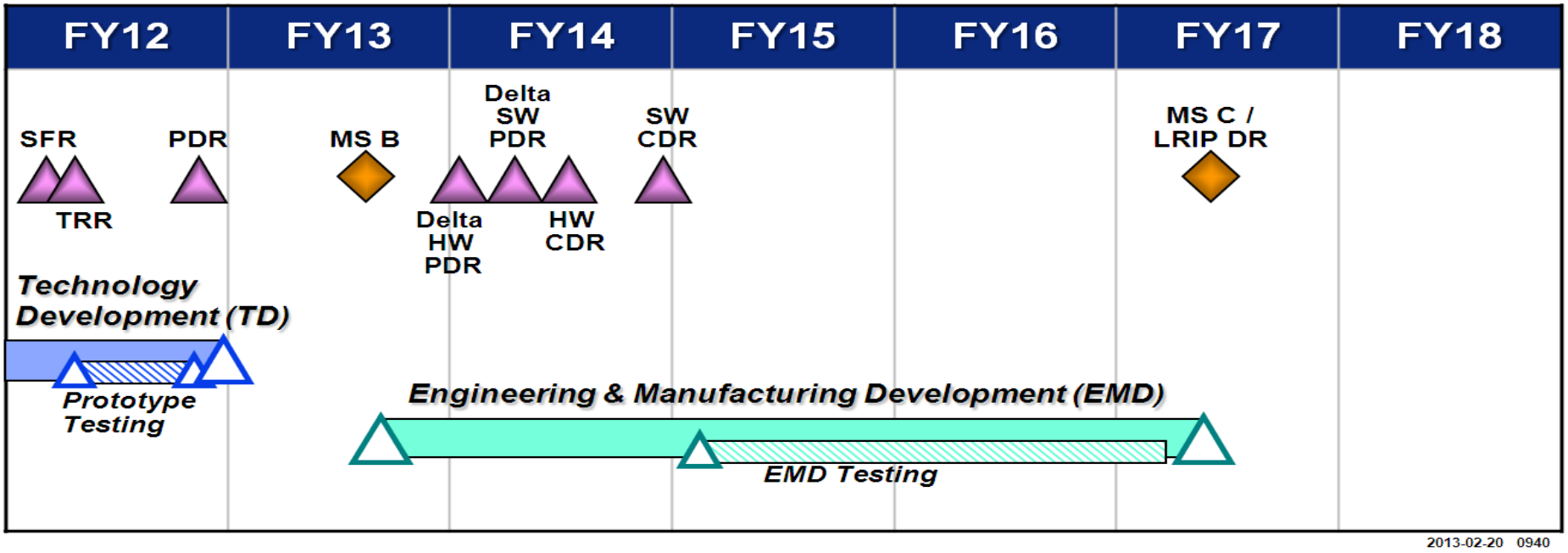
Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Support Management Services	SS/FFP	BAE Systems:Rockville, MD	5.319	0.000		0.000		0.000		-		0.000	0.000	5.319	
Support Management Services	C/CPFF	SPA-PSS:Alexandria, VA	9.206	2.898	Jan 2012	2.217	Dec 2012	2.255	Dec 2013	-		2.255	Continuing	Continuing	Continuing
Travel	Allot	PEOIWS2:Washington, DC	0.511	0.062	Jan 2012	0.113	Dec 2012	0.115	Dec 2013	-		0.115	Continuing	Continuing	Continuing
DAWDF	Various	N/A:N/A	0.513	0.000		0.000		0.000		-		0.000	0.000	0.513	
Support Management Services	WR	NSWC/IHD:Indian Head, MD	1.142	0.000		0.000		0.000		-		0.000	0.000	1.142	
Support Management Services	WR	NSWC/DD:Dahlgren, VA	0.000	1.902	Nov 2011	2.675	Dec 2012	1.801	Dec 2013	-		1.801	Continuing	Continuing	Continuing
		Subtotal	16.691	4.862		5.005		4.171		0.000		4.171			

	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	547.023	148.612		223.621		240.132		0.000		240.132			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *System Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604501N: *Advanced Above Water Sensors*	PROJECT 3186: *Air and Missile Defense Radar*



CDR	Critical Design Review
DR	Decision Review
HW	Hardware
LRIP	Low Rate Initial Production
MS	Milestone
PDR	Preliminary Design Review
SFR	System Functional Review
TRR	Test Readiness Review
SW	Software

Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *System Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604501N: *Advanced Above Water Sensors*	**PROJECT** 3186: *Air and Missile Defense Radar*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 3186				
Technology Development (TD)	1	2012	4	2012
TD System Functional Review (SFR)	1	2012	1	2012
TD Test Readiness Review (TRR)	2	2012	2	2012
TD Prototype Testing	2	2012	4	2012
TD Preliminary Design Review (PDR)	4	2012	4	2012
Milestone B (MS B)	3	2013	3	2013
Engineering & Manufacturing Development (EMD)	3	2013	2	2017
EMD HW Delta PDR	1	2014	1	2014
EMD SW / System Delta PDR	2	2014	2	2014
EMD HW Critical Design Review (CDR)	3	2014	3	2014
EMD SW / System Critical Design Review (CDR)	4	2014	4	2014
EMD Testing	1	2015	1	2017
Milestone C (MS C) / Low Rate Initial Production Decision Review (LRIP DR)	2	2017	2	2017

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *System Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604501N: *Advanced Above Water Sensors*	PROJECT 3187: *Periscope Detection*	

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
3187: *Periscope Detection*	33.704	21.711	1.730	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	57.145
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

Periscope Detection: The CVN Periscope Detection Radar program, AN/SPS-74(V), develops and delivers the capability which provides automated detection and discrimination of submarine periscopes using advanced algorithms. This enables discrimination of periscopes from surface contacts, buoys, small boats, floating mines, etc. This effort was initially based on an Advanced Development Model (ADM), developed in PE 0603553N, Surface Antisubmarine Warfare. VCNO Memorandum Ser N09/12U100544 dtd 17 Dec, 2012 directs cancellation of the AN/SPS-74 Program. FY12 and FY13 funding will develop the Periscope Detection and Discrimination (PDD) interface for the AN/SPQ-9B Radar.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: Periscope Detection	21.711	1.730	0.000
Articles:	0	0	
FY 2012 Accomplishments: - Began planning for First Article Testing for AN/SPS-74(V) to include Environmental Qualification Testing (EQT) and below deck shock testing. Completed development of Radar Data Processor (RDP) for AN/SPS-74(V). - Began AN/SPQ-9B Radar PDD interface development and testing. Began planning for Independent Operational Test and Evaluation (IOT&E).			
FY 2013 Plans: - Complete AN/SPQ-9B Radar PDD interface development and testing.			
Accomplishments/Planned Programs Subtotals	21.711	1.730	0.000

C. Other Program Funding Summary ($ in Millions)

Line Item	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
• OPN/2040: *0204228N/2040 Radar Support (OPN)*	10.618	0.000	0.000		0.000	0.000	0.000	0.000	0.000	0.000	27.507
• OPN/2980: *0204228N/2980 Radar Support (OPN)*	0.000	10.356	0.700		0.700	0.700	0.700	0.700	0.700	Continuing	Continuing

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *System Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604501N: *Advanced Above Water Sensors*	PROJECT 3187: *Periscope Detection*

C. Other Program Funding Summary ($ in Millions)

Line Item	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

Remarks

D. Acquisition Strategy

Current Program supports four (4) Advanced Demonstration Models (ADMs).

E. Performance Metrics

- Complete AN/SPQ-9B PDD Interface Development and Testing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *System Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604501N: *Advanced Above Water Sensors*	PROJECT 3187: *Periscope Detection*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Engineering Design Support	SS/CPFF	JHU/APL:Laurel, MD	2.071	2.828	Jan 2012	0.000		0.000		-		0.000	0.000	4.899	
Primary Hardware Development	SS/CPFF	NGC:Baltimore, MD	8.162	3.392	Feb 2012	1.130	Apr 2013	0.000		-		0.000	0.000	12.684	
Engineering Design Support	WR	NSWC/ Dahlgren:Dahlgren, VA	2.270	0.000		0.000		0.000		-		0.000	0.000	2.270	
Primary Hardware Development	SS/CPFF	3 Phoenix:Fairfax, VA	9.012	10.524	Feb 2012	0.000		0.000		-		0.000	0.000	19.536	
		Subtotal	21.515	16.744		1.130		0.000		0.000		0.000	0.000	39.389	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Test and Evaluation	WR	NSWC/PHD:Virginia Beach, VA	7.289	1.428	Nov 2011	0.000		0.000		-		0.000	0.000	8.717	
Test and Evaluation	WR	OPTEVFOR:Norfolk, VA	0.150	0.005	Jan 2012	0.000		0.000		-		0.000	0.000	0.155	
Test and Evaluation	WR	NSWC/PHD:Port Hueneme, CA	0.802	2.732	Nov 2011	0.400	Mar 2013	0.000		-		0.000	0.000	3.934	
Test and Evaluation	WR	NSWC/Crane:Crane, IN	2.227	0.050	Jan 2012	0.075	Mar 2013	0.000		-		0.000	0.000	2.352	
Test and Evaluation	WR	NSWC/ Corona:Corona, CA	0.000	0.052	Nov 2011	0.000		0.000		-		0.000	0.000	0.052	
Test and Evaluation	WR	NRL:Washington, DC	1.571	0.700	Nov 2011	0.125	Mar 2013	0.000		-		0.000	0.000	2.396	
		Subtotal	12.039	4.967		0.600		0.000		0.000		0.000	0.000	17.606	

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *System Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604501N: *Advanced Above Water Sensors*	PROJECT 3187: *Periscope Detection*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Support Management Services	SS/CPFF	GCAS:San Marcos, CA	0.051	0.000		0.000		0.000		-		0.000	0.000	0.051	
Support Management Services	C/CPAF	DTI:Norfolk, VA	0.063	0.000		0.000		0.000		-		0.000	0.000	0.063	
DAWDF	Allot	N/A:N/A	0.036	0.000		0.000		0.000		-		0.000	0.000	0.036	
		Subtotal	0.150	0.000		0.000		0.000		0.000		0.000	0.000	0.150	

	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	33.704	21.711		1.730		0.000		0.000		0.000	0.000	57.145	

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *System Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604501N: *Advanced Above Water Sensors*	PROJECT 3187: *Periscope Detection*

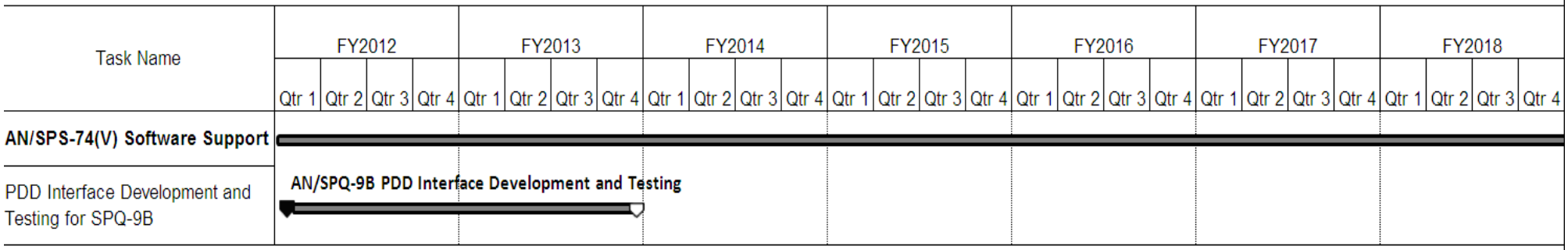


Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *System Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604501N: *Advanced Above Water Sensors*	**PROJECT** 3187: *Periscope Detection*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 3187				
AN/SPS-74(V) ADM Software Support	1	2012	4	2018
PDD Interface Development and Testing for AN/SPQ-9B	1	2012	4	2013

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *System Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604501N: *Advanced Above Water Sensors*	PROJECT 3188: *Dual-Band Radar*	

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
3188: *Dual-Band Radar*	34.151	21.008	12.042	18.893	-	18.893	14.281	8.434	6.997	7.102	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

Dual-Band Radar (DBR) Upgrades: Funding is for Dual Band Radar (DBR) System upgrades to implement cost savings initiatives for Volume Search Radar (VSR) modifications, supportability analysis and associated logistics product updates; future upgrades/technology insertion efforts for Multi-Function Radar (MFR)/VSR as a part of the DBR suite on CVN 78 Class ships and the MFR on DDG 1000 Class ships. Funding is also required to resolve the hardware and software issues discovered during the various test events to include: DTB2-411, SDTS testing, Land Based Testing and pertinent At-Sea test events. The upgrades will include all aspects of the radar system/subsystems, including hardware and software. Specific subsystem areas include the Array, Transmit/Receive (T/R) module, Receiver/Exciter, Signal Data Processor, Radome, and power/cooling systems. Upgrades and technology insertions are required to maintain the level of force protection needed for ship defense against all threats envisioned in the littoral environment. The supportability analysis and logistic products associated with these upgrades will also be developed and updated.

DBR Battle Force Tactical Trainer (BFTT)/Cooperative Engagement Capability (CEC)/Surface Electronic Warfare Improvement Program (SEWIP) Interface: FY12-14 requirement supports the design and development of the software interface between DBR and AN/USQ-46 BFTT, CEC and SEWIP to enhance CVN 78 combat readiness. The contract award is planned for FY12 and continues with validation testing in FY14.

DBR CVN 78 Testing and Certification: FY12-FY17 requirement supports DBR At-Sea Test and Evaluation (T&E), Environmental Testing and DBR Systems Certification for CVN 78.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: RADAR UPGRADES TECHNOLOGY INSERTION	16.363	8.288	11.920
Articles:	0	0	0
FY 2012 Accomplishments: - Finalized VSR development and testing. - Conducted Technology Insertion for the MFR/VSR/DBR hardware and software and development/updates to associated logistics products. - Prepared for software development to implement live over simulation training capability in support of BFTT integration. - Prepared for software development to implement DBR/SEWIP interface. - Commenced software development to implement DBR/CEC interface.			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *System Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604501N: *Advanced Above Water Sensors*	PROJECT 3188: *Dual-Band Radar*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
- Provided technical support for the DBR element certification in support of the overall combat system certification for CVN 78. ***FY 2013 Plans:*** - Continue Technology Insertion for the MFR/VSR/DBR hardware and software and development/updates to associated logistics products. - Commence software development to implement live over simulation training capability in support of BFTT integration. - Commence software development to implement DBR/SEWIP interface. - Continue software development to implement DBR/CEC interface. - Continue to provide technical support for the DBR element certification in support of the overall combat system certification for CVN 78. ***FY 2014 Plans:*** - Continue Technology Insertion for the MFR/VSR/DBR hardware and software and development/updates to associated logistics products. - Continue software development to implement live over simulation training capability in support of BFTT integration. - Complete software development of DBR/SEWIP interface. - Complete software development of DBR/CEC interface. - Continue to provide technical support for the DBR element certification in support of the overall combat system certification for CVN 78. - Conduct validation testing of the DBR/BFTT, DBR/CEC and DBR/SEWIP software interfaces.			
Title: RADAR UPGRADES GOVERNMENT ENGINEERING SERVICES	4.007	3.309	6.493
Articles:	0	0	0
FY 2012 Accomplishments: - Provided Government Engineering Services support for radar upgrades and technology insertion of the MFR/VSR/DBR radars. Performed oversight and assessment of efforts associated with this phase of the program. - Provided Government Engineering Services in support of DBR BFTT integration for CVN 78. - Commenced DBR EMI testing efforts. - Completed assessment of VSR Radome Performance. - Provided Government Engineering Services for the DBR/CEC and DBR/SEWIP software interface development. ***FY 2013 Plans:*** - Continue to provide Government Engineering Services support for radar upgrades and technology insertion of the MFR/VSR/DBR radars. Perform oversight and assessment of efforts associated with this phase of the program. - Complete DBR EMI testing efforts. - Continue to provide Government Engineering Services in support of DBR BFTT integration for CVN 78.			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *System Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604501N: *Advanced Above Water Sensors*	PROJECT 3188: *Dual-Band Radar*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
- Provide Government Engineering Services required to complete DBR element certification to support overall combat system certification for CVN 78. - Continue to provide Government Engineering Services for the DBR/CEC and DBR/SEWIP software interface development. ***FY 2014 Plans:*** - Continue to provide Government Engineering Services support for radar upgrades and technology insertion of the MFR/VSR/ DBR radars. Perform oversight and assessment of efforts associated with this phase of the program. - Continue to provide Government Engineering Services in support of DBR BFTT integration for CVN 78. - Continue to provide Government Engineering Services required to complete DBR element certification to support overall combat system certification for CVN 78. - Continue to provide Government Engineering Services for the DBR/CEC and DBR/SEWIP software interface development. - Provide engineering services to support validation testing of the DBR/BFTT, DBR/CEC and DBR/SEWIP software interfaces.			
Title: RADAR UPGRADES PROGRAM MANAGEMENT	0.638	0.445	0.480
Articles:	0	0	0
FY 2012 Accomplishments: - Provided Program Management and logistics support for radar upgrades and technology insertion for the MFR/VSR/DBR radars. - Provided Program Management for the DBR/BFTT, DBR/CEC and DBR/SEWIP software interface development. ***FY 2013 Plans:*** - Continue to provide Program Management and logistics support for radar upgrades and technology insertion for the MFR/VSR/ DBR radars. - Continue to provide Program Management support of DBR BFTT integration for CVN 78. ***FY 2014 Plans:*** - Continue to provide Program Management and logistics support for radar upgrades and technology insertion for the MFR/VSR/ DBR radars. - Continue to provide Program Management support of DBR BFTT integration for CVN 78. - Provide Program Management for validation testing of the DBR/BFTT, DBR/CEC and DBR/SEWIP software interfaces.			
Accomplishments/Planned Programs Subtotals	21.008	12.042	18.893

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *System Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604501N: *Advanced Above Water Sensors*	PROJECT 3188: *Dual-Band Radar*

C. Other Program Funding Summary ($ in Millions)

Line Item	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
• OPN/2980: *BLI 2980/OPN Items Less Than $5M*	0.000	4.900	3.263		3.263	4.408	11.674	16.467	16.467	Continuing	Continuing
• OMN/0702228N: *0702228N/1C2C/O&M,N*	0.000	1.312	3.058		3.058	3.548	3.143	3.043	3.100	Continuing	Continuing

Remarks

D. Acquisition Strategy

Radar Upgrades and logistic products will be developed to address lessons learned and technology refresh for DBR systems on multiple ship classes.

E. Performance Metrics

- Complete upgrade studies and analyses each fiscal year to determine efficiencies for H/W and S/W upgrades and to determine appropriate logistics product updates
- Complete co-site and off-ship EMI analysis testing
- Complete VSR Radome development and determine opportunities to improve configuration and performance
- Complete upgrade technology insertion
- Complete development of logistics products
- Implement supportability analysis to improve supportability and reduce overall lifecycle cost
- Complete DBR At-Sea Test and Evaluation (T&E)
- Complete Environmental Testing
- Complete DBR/CEC interface development
- Complete DBR Systems Certification
- Complete CAPS redesign
- Complete DBR/SEWIP interface development
- Complete DBR/BFTT interface development

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *System Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604501N: *Advanced Above Water Sensors*	PROJECT 3188: *Dual-Band Radar*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Government Engineering Support	WR	Other Government Activities:Various	1.143	0.000		0.000		0.000		-		0.000	0.000	1.143	
Government Engineering Support	WR	NSWC/ Dahlgren:Dahlgren, VA	3.315	2.763	Nov 2011	1.311	Jan 2013	2.772	Dec 2013	-		2.772	Continuing	Continuing	Continuing
Government Engineering Support	WR	NSWC/PHD:Port Hueneme, CA	2.767	0.414	Jun 2012	1.176	Apr 2013	2.246	Dec 2013	-		2.246	Continuing	Continuing	Continuing
Government Engineering Support	WR	NSWC/Crane:Crane, IN	3.941	0.342	Jan 2012	0.491	Jan 2013	0.750	Dec 2013	-		0.750	Continuing	Continuing	Continuing
Government Engineering Support	WR	NRL:Washington, DC	3.725	0.000		0.000		0.000		-		0.000	0.000	3.725	
Government Engineering Support	SS/CPFF	JHU/APL:Columbia, MD	0.300	0.330	Dec 2011	0.121	Feb 2013	0.400	Dec 2013	-		0.400	Continuing	Continuing	Continuing
Government Engineering Support	MIPR	NSMA:Arlington, VA	0.903	0.000		0.000		0.000		-		0.000	0.000	0.903	
Government Engineering Support	SS/CPFF	GTRI:Atlanta, GA	0.453	0.127	Feb 2012	0.000		0.250	Dec 2013	-		0.250	Continuing	Continuing	Continuing
Government Engineering Support	WR	NSWC/ Carderock:Philadelphia, PA	0.044	0.031	Dec 2011	0.215	Jan 2013	0.075	Dec 2013	-		0.075	Continuing	Continuing	Continuing
Systems Engineering	SS/CPFF	Raytheon:Raytheon, Sudbury, MA	12.921	16.363	Jun 2012	8.288	Dec 2012	11.920	Dec 2013	-		11.920	Continuing	Continuing	Continuing
Systems Engineering	SS/CPAF	Raytheon IDS:San Diego, CA	1.500	0.000		0.000		0.000		-		0.000	0.000	1.500	
Systems Engineering	SS/CPFF	General Dynamics AIS:Fairfax, VA	1.000	0.000		0.000		0.000		-		0.000	0.000	1.000	
Systems Engineering	SS/CPFF	PMS 320 Syntek:Arlington, VA	0.400	0.000		0.000		0.000		-		0.000	0.000	0.400	
		Subtotal	32.412	20.370		11.602		18.413		0.000		18.413			

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *System Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604501N: *Advanced Above Water Sensors*	PROJECT 3188: *Dual-Band Radar*

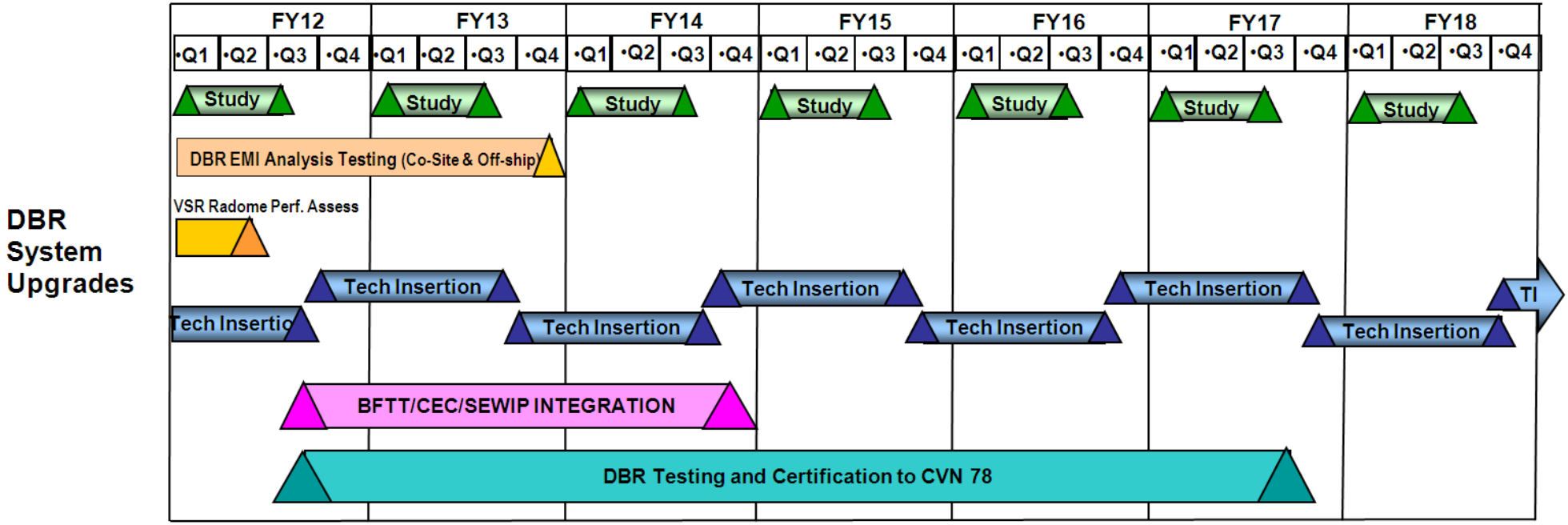
Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	C/CPFF	SPA:Washington, DC	1.546	0.624	Jan 2012	0.410	Jan 2013	0.450	Dec 2013	-		0.450	Continuing	Continuing	Continuing
DAWDF	Allot	N/A:N/A	0.027	0.000		0.000		0.000		-		0.000	0.000	0.027	
Travel	Allot	PEOIWS2:Washington, DC	0.100	0.014	Jan 2012	0.030	Dec 2012	0.030	Dec 2013	-		0.030	0.000	0.174	
Program Management Support	C/CPIF	ALION:Washington, DC	0.026	0.000		0.000		0.000		-		0.000	0.000	0.026	
Program Management Support	C/CPFF	CACI:Washington, DC	0.040	0.000		0.000		0.000		-		0.000	0.000	0.040	
		Subtotal	1.739	0.638		0.440		0.480		0.000		0.480			

	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	34.151	21.008		12.042		18.893		0.000		18.893			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *System Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604501N: *Advanced Above Water Sensors*	PROJECT 3188: *Dual-Band Radar*



Note: Supportability Analysis is conducted in conjunction with the Study.
Hardware, software and logistic product updates are conducted in conjunction with the Tech Insertion and CVN 78 BFTT/CEC/SEWIP Integration.
DBR At-Sea T&E, Environmental Testing and DBR System Certification are included in the DBR Testing and Certification support to CVN 78

Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *System Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604501N: *Advanced Above Water Sensors*	**PROJECT** 3188: *Dual-Band Radar*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 3188				
DBR System Upgrade Studies and Analysis	1	2012	3	2018
DBR EMI Analysis Testing (Co-Site & Off-ship)	1	2012	4	2013
DBR VSR Radome Performance Assessment	1	2012	2	2012
DBR System Upgrade Technology Insertion	1	2012	4	2018
DBR BFTT Integration for CVN 78	3	2012	4	2014
DBR Testing and Certification to CVN 78	3	2012	4	2017

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *System Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604501N: *Advanced Above Water Sensors*	PROJECT 3232: *Multi-Mission Signal Processor*	

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
3232: *Multi-Mission Signal Processor*	84.874	23.282	14.617	14.795	-	14.795	15.856	16.290	16.545	16.797	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

Multi-Mission Signal Processor (MMSP): The development of Multi-Mission Signal Processor (MMSP) provides Anti-Air Warfare (AAW)/Ballistic Missile Defense (BMD) Multi-mission capability for DDG 51 class ships as part of Aegis Modernization Program. This capability will be utilized for DDG 113 and follow new construction and Aegis Ashore. Modifies SPY-1D Transmitters to enable dual beam for reduced frame times and better reaction time, and provides stability for all D (V) waveforms and avoid operational degradation. The SPY-1 radar system detects, tracks and supports engagements of a broader range of threats. MMSP improves performance in littoral, ducted clutter environments, and in electronic attack (EA), and chaff environments and provides greater commonality in computer programs and equipment. This effort also provides for the development of a Solid State Switch Assembly (SSSA) through an ONR/MANTECH project, MMSP Commercial Off-The-Shelf (COTS) refresh, radar capability upgrades, reliability improvements, and ship-based Non-Cooperative Target Recognition (NCTR).

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: SYSTEMS ENGINEERING	23.282	14.617	14.795
Articles:	0	0	0

FY 2012 Accomplishments:

- Prepared for and completed the Multi-Mission Exercise and Qualification Testing
- Continued to support MMSP integration testing with ACB-12 to address all MMSP related issues
- Installed Transmitter Modification at CSEDS
- Continued to maintain alignment with the Ballistic Missile Defense Program and the associated Ballistic Missile Defense Signal Processor (BSP) adjunct to incorporate BMD capability within MMSP during AEGIS Modernization

FY 2013 Plans:

- Support Aegis Light Off (ALO)
- Continue to support MMSP integration testing with ACB-12 to address all MMSP related issues
- Initiate validation and verification testing and computer program corrections
- Continue to maintain alignment with the Ballistic Missile Defense Program and the associated Ballistic Missile Defense Signal Processor (BSP) adjunct to incorporate BMD capability within MMSP during AEGIS Modernization
- Initiate design and development of MANTECH Solid State Switch Assembly (SSSA)

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *System Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604501N: *Advanced Above Water Sensors*	PROJECT 3232: *Multi-Mission Signal Processor*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
- Initiate MMSP COTS Refresh and reliability improvements - Initiate DDG Baseline 9 Radar Capabilities Upgrades, Ship-Based NCTR, and Baseline 9 Radar Synchronization - ACB 16 Radar requirements analysis and acquisition management			
FY 2014 Plans: - Support of Combat System Ship Qualification Trials (CSSQT) testing - MMSP/ACB12 Radar Integration at-sea validation testing and Computer Program Correction - Continue design and development of MANTECH SSSA - Continue COTS Refresh and reliability improvements -Continue DDG Baseline 9 Radar Capabilities Upgrades, Ship-Based NCTR, and Baseline 9 Radar Synchronization - Initiate ACB 16 Radar upgrades for MMSP development - Continue to maintain alignment with the Ballistic Missile Defense Program and the associated Ballistic Missile Defense Signal Processor (BSP) adjunct to incorporate BMD capability within MMSP during AEGIS Modernization			
Accomplishments/Planned Programs Subtotals	23.282	14.617	14.795

C. Other Program Funding Summary ($ in Millions)

Line Item	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
• SCN/2122: *BLI 2122/SCN DDG 51*	2,081.432	3,514.941	2,004.115		2,004.115	2,877.046	3,443.611	3,732.564	3,693.696	Continuing	Continuing
• OPN/0900: *BLI 0900/OPN DDG Modernization*	126.373	452.371	285.994		285.994	517.286	469.890	530.225	801.286	Continuing	Continuing

Remarks

D. Acquisition Strategy

Multi-Mission Signal Processor (MMSP) provides AAW/BMD Multi-mission capability for AEGIS Modernization Program and leverages BMD 4.0.1 and SPY-1D(V) designs. This MMSP development efforts support integration of BMD 5.0 signal processing, and will lead to the OPN/SCN procurement for shore sites and shipsets. This effort also provides for the development of a Solid State Switch Assembly (SSSA) through an ONR/MANTECH project, and will lead to OPN/SCN procurement for shore sites and shipsets. COTS refresh, radar capability upgrades, reliability improvements, and ship-based Non-Cooperative Target Recognition will be incorporated into Baseline 9 and follow.

E. Performance Metrics

- Complete DDG SPY-1D(V) Engineering Exercise (EE) #2
- Complete DDG Qualification Testing

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *System Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604501N: *Advanced Above Water Sensors*	PROJECT 3232: *Multi-Mission Signal Processor*

- Complete DDG ACB 12 Multi-Mission Exercise
- Complete DDG Delivery
- Complete DDG Aegis Light Off (ALO)
- Complete DDG Combat System Ship Qualification Trials (CSSQT)
- Complete DDG Final Certification
- Complete DDG Commercial Off The Shelf (COTS) Refresh - Engineering Change Proposal (ECP)
- Complete Solid State Switch Assembly contract award
- Complete Solid State Switch Assembly Critical Design Review (CDR)
- Complete Solid State Switch Assembly Final Certification
- Complete Ship-Based NCTR Engineering Exercise
- Complete ACB16 Preliminary Design Review (PDR)
- Complete ACB16 CDR
- Complete ACB16 Demo
- Complete ACB16 ALO
- Complete ACB16 Final Certification
- Complete ACB Next PDR
- Complete ACB Next CDR
- Complete ACB Next Test Readiness Review (TRR)

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *System Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604501N: *Advanced Above Water Sensors*	PROJECT 3232: *Multi-Mission Signal Processor*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
SYSTEM ENGINEERING	SS/CPFF	Lockheed Martin:Moorestown, NJ	77.236	15.799	Jan 2012	6.742	Dec 2012	6.784	Dec 2013	-		6.784	Continuing	Continuing	Continuing
SYSTEM ENGINEERING	C/CPFF	AEGIS Techrep:Moorestown, NJ	1.084	1.527	Jan 2012	0.900	Dec 2012	0.902	Dec 2013	-		0.902	Continuing	Continuing	Continuing
SYSTEM ENGINEERING	SS/FP	APL/JHU:Laurel, MD	1.188	1.121	Jan 2012	0.970	Jan 2013	0.972	Dec 2013	-		0.972	Continuing	Continuing	Continuing
SYSTEM ENGINEERING	WR	CSCS:Dahlgren, VA	0.513	0.285	Jan 2012	0.210	Dec 2012	0.303	Dec 2013	-		0.303	Continuing	Continuing	Continuing
SYSTEM ENGINEERING	WR	NRL:Washington, DC	0.960	0.799	Jan 2012	0.664	Nov 2012	0.659	Dec 2013	-		0.659	Continuing	Continuing	Continuing
SYSTEM ENGINEERING	WR	NSWC/DD:Dahlgren, VA	1.153	1.487	Jan 2012	1.128	Nov 2012	1.146	Nov 2013	-		1.146	Continuing	Continuing	Continuing
SYSTEM ENGINEERING	WR	NSWC/CR:Crane, IN	0.980	0.810	Jan 2012	0.583	Nov 2012	0.608	Nov 2013	-		0.608	Continuing	Continuing	Continuing
SYSTEM ENGINEERING	WR	NSWC/PHD:Port Hueneme, CA	1.110	1.049	Jan 2012	0.805	Nov 2012	0.808	Nov 2013	-		0.808	Continuing	Continuing	Continuing
SYSTEM ENGINEERING	WR	Office of Naval Research:Arlington, VA	0.000	0.000		2.250	Dec 2012	2.250	Oct 2013	-		2.250	Continuing	Continuing	Continuing
		Subtotal	84.224	22.877		14.252		14.432		0.000		14.432			

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Travel	Allot	PEOIWS2:Washington, DC	0.100	0.038	Jan 2012	0.032	Nov 2012	0.030	Nov 2013	-		0.030	Continuing	Continuing	Continuing
PSS	C/CPFF	SPA-PSS:Washington, DC	0.550	0.367	Nov 2011	0.333	Jan 2013	0.333	Nov 2013	-		0.333	Continuing	Continuing	Continuing
		Subtotal	0.650	0.405		0.365		0.363		0.000		0.363			

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *System Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604501N: *Advanced Above Water Sensors*	PROJECT 3232: *Multi-Mission Signal Processor*	

	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	84.874	23.282		14.617		14.795		0.000		14.795			

Remarks

Between PB13 and PB14, reduced funding due to cancelation of MMSP for Cruiser development.

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *System Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604501N: *Advanced Above Water Sensors*	PROJECT 3232: *Multi-Mission Signal Processor*

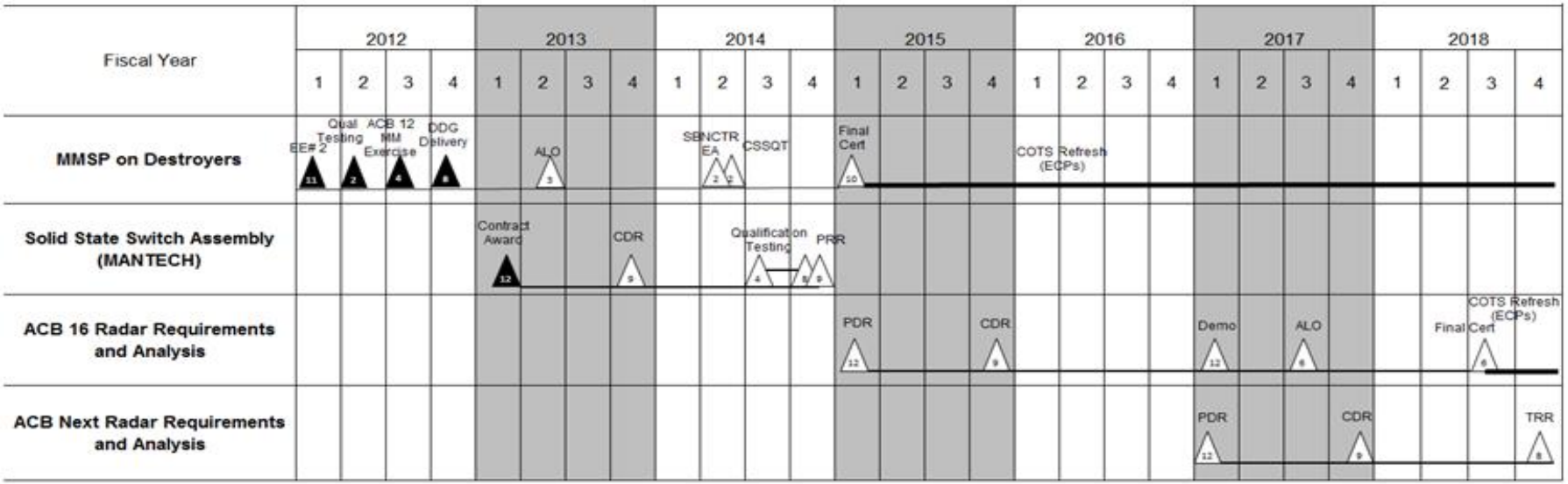


Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *System Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604501N: *Advanced Above Water Sensors*	PROJECT 3232: *Multi-Mission Signal Processor*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 3232				
DDG SPY-1D(V) Engineering Exercise (EE) #2	1	2012	1	2012
DDG Qualification Testing	2	2012	2	2012
DDG ACB 12 Multi-Mission Exercise	3	2012	3	2012
DDG Delivery	4	2012	4	2012
Solid State Switch Assembly Contract Award	1	2013	1	2013
DDG Aegis Light Off (ALO)	2	2013	2	2013
Solid State Switch Assembly CDR	4	2013	4	2013
DDG Combat System Ship Qualification Trials (CSSQT)	2	2014	2	2014
Ship-Based Non-Cooperative Target Recognition Engineering Exercise	2	2014	2	2014
Solid State Switch Assembly Qualification Testing	3	2014	4	2014
Solid State Switch Assembly PRR	4	2014	4	2014
DDG Final Certification	1	2015	1	2015
DDG Commercial Off The Shelf (COTS) Refresh - Engineering Change Proposals (ECP)	1	2015	4	2018
ACB 16 Preliminary Design Review (PDR)	1	2015	1	2015
ACB 16 Critical Design Review (CDR)	4	2015	4	2015
ACB 16 Demo	1	2017	1	2017
ACB Next PDR	1	2017	1	2017
ACB 16 ALO	3	2017	3	2017
ACB Next CDR	4	2017	4	2017
ACB 16 Final Certification	3	2018	3	2018

Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *System Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604501N: *Advanced Above Water Sensors*	PROJECT 3232: *Multi-Mission Signal Processor*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
ACB 16 COTS Refresh - ECP	3	2018	4	2018
ACB Next Test Readiness Review (TRR)	4	2018	4	2018

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *System Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604501N: *Advanced Above Water Sensors*	PROJECT 3301: *Improved Capabilities SPY-1 Radar*	

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
3301: *Improved Capabilities SPY-1 Radar*	3.481	4.509	3.506	2.051	-	2.051	0.935	0.954	0.964	0.980	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

Improved Capabilities for SPY-1 Radar: These Reliability, Maintainability, and Availability (RM&A) improvements are intended to reduce cascading failures, mitigate obsolescence issues, and improve reliability in support of Anti-Air Warfare (AAW) and Ballistic Missile Defense (BMD) missions while still providing AN/SPY-1 Radar Total Ownership Cost Reductions. Improvements will yield reductions in annual fleet maintenance costs.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: Improved Capabilities SPY-1 Radar	4.509	3.506	2.051
Articles:	0	0	0

FY 2012 Accomplishments:

- Continued design and development of Sidewall Capacitor monitoring circuit for HVPS
- Continued design, development, Environmental Testing for 10KW Traveling Wave Tube (TWT)
- Initiated design improvements to filament for Switch Tube
- Initiated design and development of reliability improvements for the Simplified Driver (SDR)
- Initiated design and development of the Crossed Field Amplifier (CFA) Microwave Tube
- Initiated development of additional cost reduction initiatives

FY 2013 Plans:

- Finalize design and development of Sidewall Capacitor monitoring circuit for High Voltage Power Supply (HVPS)
- Finalize design and development of 10KW TWT
- Finalize design improvements to filament for Switch Tube
- Finalize design and development of Crossed Field Amplifier Microwave Tube
- Continue design and development of reliability improvements for the SDR
- Initiate Water Cooled Vane (WCV) to Double Duty (DD) engineering development
- Continue development of additional cost reduction initiatives

FY 2014 Plans:

- Finalize WCV to DD engineering development

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *System Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604501N: *Advanced Above Water Sensors*	PROJECT 3301: *Improved Capabilities SPY-1 Radar*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
- Finalize design and development of reliability improvements for the SDR - Continue development of additional cost reduction initiatives			
Accomplishments/Planned Programs Subtotals	4.509	3.506	2.051

C. Other Program Funding Summary ($ in Millions)

Line Item	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
• OPN/2980: *Items Less Than $5M*	0.000	2.400	9.592		9.592	6.399	1.500	1.627	1.627	Continuing	Continuing
• O&MN/0702228N: *O&M,N AEGIS Wholeness SPY Transmitter Reliability*	0.000	3.600	4.100		4.100	4.700	2.700	6.300	0.000	Continuing	Continuing

Remarks

D. Acquisition Strategy

Improved Capabilities SPY-1 Reliability, Maintainability, and Availability (RM&A) will design and development of an Ordnance Alterations (ORDALT) Package for fixes and modifications to known transmitter, microwave tube (MWT), and logistic shortcomings (also includes the MK-99 CWI MWT).

E. Performance Metrics

- Complete 10KW Traveling Wave Tube/Continuous Wave Illumination Microwave Tube (TWT/CWI MWT) Improvement Design/Development
- Complete A/B El Switch Improvement Design/Development
- Complete Sidewall Capacitor Monitoring Circuit
- Complete 10KW Monitoring Circuit development
- Complete Crossed Field Amplifier/Switch Tube (CFA/SWT) MWT Improvement Design Development
- Complete MWT Improvement Design/Development
- Complete Water Cooled Vane (WCV) to Double Duty (DD) engineering development
- Complete Simplified Driver (SDR) reliability design improvements

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *System Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604501N: *Advanced Above Water Sensors*	PROJECT 3301: *Improved Capabilities SPY-1 Radar*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
SYSTEM ENGINEERING	MIPR	Office of Naval Research:Arlington, VA	0.000	1.000	Aug 2012	0.000		0.000		-		0.000	0.000	1.000	
SYSTEM ENGINEERING	C/CPFF	Raytheon:Sudbury, MA	0.941	0.400	Jan 2012	0.400	Jan 2013	0.200	Dec 2013	-		0.200	Continuing	Continuing	Continuing
SYSTEM ENGINEERING	WR	NSWC/Crane, IN:Crane, IN	2.540	3.109	Jan 2012	3.106	Nov 2012	1.851	Nov 2013	-		1.851	Continuing	Continuing	Continuing
		Subtotal	3.481	4.509		3.506		2.051		0.000		2.051			

	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	3.481	4.509		3.506		2.051		0.000		2.051			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *System Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604501N: *Advanced Above Water Sensors*	**PROJECT** 3301: *Improved Capabilities SPY-1 Radar*

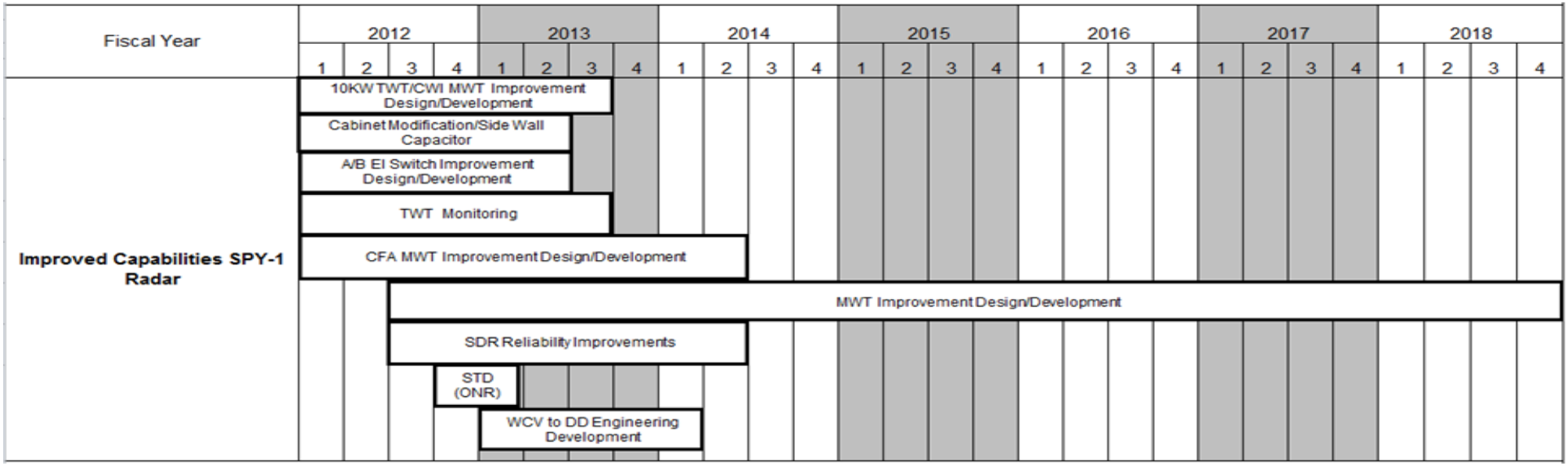


Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *System Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604501N: *Advanced Above Water Sensors*	**PROJECT** 3301: *Improved Capabilities SPY-1 Radar*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 3301				
10 KW Traveling Wave Tube (TWT)/Continuous Wave Illuminator (CWI) Microwave Tube (MWT) Improvement Design/Development	1	2012	3	2013
Cabinet Modification/Side Wall Capacitor	1	2012	2	2013
A/B Electric Switch Improvement Design/Development	1	2012	2	2013
Travel Wave Tube (TWT) Monitoring	1	2012	3	2013
Crossed Field Amplifier (CFA)/Switch Tube (SWT) Microwave Tube (MWT) Improvement Design/Development	1	2012	2	2014
MWT Improvement Design/Development	3	2012	4	2018
Simplified Driver (SDR) Reliability Improvements	3	2012	2	2014
Switch Tube Drawer (STD) Reliability Project - ONR	4	2012	1	2013
Water Cooled Vane (WCV) to Doubly Duty (DD) Engineering Development	1	2013	1	2014

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *System Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604501N: *Advanced Above Water Sensors*	PROJECT 9999: *Congressional Adds*	

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
9999: *Congressional Adds*	0.000	20.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	20.000
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

Advanced Radar Innovation Fund: Funds the development and integration of existing and new technologies into the Navy's sensors to enhance performance and ensure sensor operations and sustainment throughout the lifecycle of the sensor and platforms on which installed.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013
Congressional Add: Adv Radar Innovation Fund - Surf (Cong)	20.000	-
FY 2012 Accomplishments: N/A		
Congressional Adds Subtotals	20.000	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

Congressional Add.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *System Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604501N: *Advanced Above Water Sensors*	PROJECT 9999: *Congressional Adds*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering	MIPR	Office of Naval Research:Arlington, VA	0.000	12.000	Sep 2013	0.000		0.000		-		0.000	0.000	12.000	
Systems Engineering	WR	NSWC/CR:Crane, IN	0.000	5.230	Dec 2012	0.000		0.000		-		0.000	0.000	5.230	
Systems Engineering	WR	NSWC/DD:Dahlgren, VA	0.000	1.055	Sep 2012	0.000		0.000		-		0.000	0.000	1.055	
Systems Engineering	WR	NSWC/PHD (VAB):Virginia Beach, VA	0.000	0.335	Nov 2012	0.000		0.000		-		0.000	0.000	0.335	
Systems Engineering	SS/CPFF	JHU/APL:Baltimore, MD	0.000	0.490	Feb 2013	0.000		0.000		-		0.000	0.000	0.490	
Systems Engineering	WR	NRL:Washington, DC	0.000	0.425	Sep 2012	0.000		0.000		-		0.000	0.000	0.425	
Systems Engineering	C/CPFF	SPA-PSS:Alexandria, VA	0.000	0.465	Sep 2012	0.000		0.000		-		0.000	0.000	0.465	
		Subtotal	0.000	20.000		0.000		0.000		0.000		0.000	0.000	20.000	

	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	20.000		0.000		0.000		0.000		0.000	0.000	20.000	

Remarks