Exhibit R-2, RDT&E Budget Item Justification: PB 2013 Navy										DATE: February 2012	
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*				R-1 ITEM NOMENCLATURE PE 0604501N: *Advanced Above Water Sensors*							
COST ($ in Millions)	**FY 2011**	**FY 2012**	**FY 2013 Base**	**FY 2013 OCO**	**FY 2013 Total**	**FY 2014**	**FY 2015**	**FY 2016**	**FY 2017**	**Cost To Complete**	**Total Cost**
Total Program Element	254.778	247.071	255.516	-	255.516	388.654	282.817	288.134	104.204	Continuing	Continuing
3186: *Air and Missile Defense Radar*	204.159	166.282	223.621	-	223.621	352.698	251.760	262.452	79.757	Continuing	Continuing
3187: *Periscope Detection*	3.238	14.509	1.730	-	1.730	-	-	-	-	0.000	19.477
3188: *Dual-Band Radar*	11.276	10.291	12.042	-	12.042	18.999	14.266	8.428	6.975	Continuing	Continuing
3232: *Multi-Mission Signal Processor*	32.624	32.360	14.617	-	14.617	14.894	15.856	16.300	16.510	Continuing	Continuing
3301: *Improved Capabilities SPY-1 Radar*	3.481	3.629	3.506	-	3.506	2.063	0.935	0.954	0.962	Continuing	Continuing
9999: *Congressional Adds*	-	20.000	-	-	-	-	-	-	-	0.000	20.000

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 13-17 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)2, 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, developed in PE 0603553N, Surface Antisubmarine Warfare. System Engineering efforts under RDT&E funding will support the conversion of the Advanced Demonstration Model (ADM) variant currently installed to a production representative model that addresses manufacturability, supportability and reliability aspects as well as full system certification. In addition, funding will develop the Periscope Detection and Discrimination (PDD) Interface for AN/SPQ-9B Radar.

Exhibit R-2, RDT&E Budget Item Justification: PB 2013 Navy	DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604501N: *Advanced Above Water Sensors*

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 interface with Battle Force Tactical Trainer (BFTT): FY12-14 supports the design, development, and testing of an interface between the DBR and BFTT (AN/USQ-46) system that will provide training to enhance combat readiness for the CVN 78 crew. The DBR/BFTT interface development project initiates with the FY12 contract award and continues with validation testing in FY14.

DBR CVN 78 Testing and Certification: Funding in FY13-FY17 supports DBR At-Sea Test and Evaluation (T&E), Environmental Testing, DBR Surface Tracks through Cooperative Engagement Capability (CEC) and DBR Systems Certification in support of 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 51-78 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.

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 2013 Navy		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604501N: *Advanced Above Water Sensors*	

B. Program Change Summary ($ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total
Previous President's Budget	274.371	227.358	355.366	-	355.366
Current President's Budget	254.778	247.071	255.516	-	255.516
Total Adjustments	-19.593	19.713	-99.850	-	-99.850
• Congressional General Reductions	-	-0.287			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	20.000			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-9.999	-			
• SBIR/STTR Transfer	-7.961	-			
• Program Adjustments	-	-	-99.257	-	-99.257
• Rate/Misc Adjustments	-	-	-0.593	-	-0.593
• Congressional General Reductions Adjustments	-1.633	-	-	-	-

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2011	FY 2012
Project: 9999: *Congressional Adds*		
Congressional Add: *Adv Radar Innovation Fund - Surf (Cong)*	-	20.000
Congressional Add Subtotals for Project: 9999	-	20.000
Congressional Add Totals for all Projects	-	20.000

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 2013 Navy			DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604501N: *Advanced Above Water Sensors*	PROJECT 3186: *Air and Missile Defense Radar*	

COST ($ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
3186: *Air and Missile Defense Radar*	204.159	166.282	223.621	-	223.621	352.698	251.760	262.452	79.757	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

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 13-17 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 2011	FY 2012	FY 2013
Title: R&D/RISK REDUCTION	10.351	2.929	-
Articles:	0	0	
FY 2011 Accomplishments: - Continued risk reduction activities associated with digital beamforming, array architectures, Transmit/Receive (T/R) modules, thermal management, and Radio Frequency (RF) semiconductors - Performed critical component and subsystem demonstrations, integration and testing - Continued international cooperative research projects, including ARTIST (U.K.), AUSPAR (Australia), and OARIS (Maritime Theater Missile Defense Forum)			
FY 2012 Plans: - Evaluate Gallium Nitride (GaN) High Power Amplifier (HPA) performance, reliability, and producibility improvements - Perform risk reduction activities associated with digital beamforming, array architectures, Transmit/Receive (T/R) modules, thermal management, and Radio Frequency (RF) semiconductors - Conduct critical component and subsystem demonstrations, integration and testing			
Title: SYSTEMS ENGINEERING	186.752	157.120	217.614

Exhibit R-2A, RDT&E Project Justification: PB 2013 Navy		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *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 2011	FY 2012	FY 2013
Articles:	0	0	0
FY 2011 Accomplishments: - Continued TD phase focused on demonstrating AMDR key technologies are scalable and sufficiently mature - Completed Technology Demonstration Plans - Reviewed preliminary system concepts and prototype designs - Matured the AMDR suite system concept to a level sufficient to support a Preliminary Design Review (PDR) - Initiated development of the Test and Evaluation Master Plan (TEMP) and update to the Systems Engineering Plan (SEP) - Reviewed system requirements and combat system/ship interfaces - Continued preparation for AMDR-S/RSC contract award			
FY 2012 Plans: - Conduct Preliminary Design Reviews with each TD contractor - Conduct the technology development component and prototype testing - Analyze and review prototype test results - Conduct Technology Readiness Level assessments - Complete 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 - Conduct Delta Hardware and Software Preliminary Design Reviews			
Title: PROGRAM MANAGEMENT SUPPORT	7.056	6.233	6.007
Articles:	0	0	0
FY 2011 Accomplishments: - Provided support to Integrated Product Teams (IPTs) and Working Groups (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 - Reviewed available/proposed technical alternatives			
FY 2012 Plans: - Provide support to Integrated Product Teams (IPTs) and WGs required for program execution and achievement of Milestone 'B' in FY13 - Assist in cost, schedule and performance management, contract administration and oversight, risk identification and mitigation			

Exhibit R-2A, RDT&E Project Justification: PB 2013 Navy		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *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 2011	FY 2012	FY 2013
- Analyze and assess contractor studies - Review 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, risk identification and mitigation - Analyze and assess contractor studies - Review available/proposed technical alternatives			
Accomplishments/Planned Programs Subtotals	204.159	166.282	223.621

C. Other Program Funding Summary ($ in Millions)

N/A

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 2013 Navy			DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *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	Total Prior Years Cost	FY 2012 Cost	FY 2012 Award Date	FY 2013 Base Cost	FY 2013 Base Award Date	FY 2013 OCO Cost	FY 2013 OCO Award Date	FY 2013 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Risk Reduction	WR	SCSC Wallops:Wallops Island, VA	10.530	-		-		-		-	0.000	10.530	
Risk Reduction	MIPR	DMEA:McClellen AFB, CA	48.022	-		-		-		-	0.000	48.022	
Risk Reduction	SS/CPFF	JHU/APL:Baltimore, MD	9.820	0.100	Jan 2012	-		-		-	0.000	9.920	
Risk Reduction	MIPR	MIT:Cambridge, MA	2.538	-		-		-		-	0.000	2.538	
Risk Reduction	WR	NRL:Washington, DC	7.178	0.916	Nov 2011	-		-		-	0.000	8.094	
Risk Reduction	C/CPAF	BAE Systems:Rockville, MD	1.980	-		-		-		-	0.000	1.980	
Risk Reduction	WR	NSWC/CR:Crane, IN	-	0.746	Dec 2011	-		-		-	0.000	0.746	
Risk Reduction	C/CPFF	SPA-PSS:Alexandria, VA	3.048	0.769	Jan 2012	-		-		-	0.000	3.817	
Risk Reduction	WR	NSWC/DD:Dahlgren, VA	6.439	-		-		-		-	0.000	6.439	
Risk Reduction	MIPR	DARPA:Adelphi, MD	5.484	0.398	Jan 2012	-		-		-	0.000	5.882	
Systems Engineering	SS/CPFF	GTRI:Atlanta, GA	5.019	3.542	Jan 2012	3.095	Dec 2012	-		3.095	Continuing	Continuing	Continuing
Systems Engineering	SS/FFP	BAE Systems:Rockville, MD	9.536	-		-		-		-	0.000	9.536	
Systems Engineering	Various	VARIOUS-SPECIAL:Special	3.078	-		-		-		-	0.000	3.078	
Systems Engineering	WR	NSWC/DD:Dahlgren, VA	38.303	14.958	Nov 2011	12.984	Dec 2012	-		12.984	Continuing	Continuing	Continuing
Systems Engineering	WR	PMRF:Kekaha, HI	1.375	0.712	Dec 2011	2.826	Dec 2012	-		2.826	Continuing	Continuing	Continuing
Systems Engineering	SS/CPFF	JHU/APL:Baltimore, MD	38.725	15.249	Jan 2012	13.363	Dec 2012	-		13.363	Continuing	Continuing	Continuing
Systems Engineering	MIPR	MIT:Cambridge, MA	10.445	5.749	Nov 2011	5.020	Dec 2012	-		5.020	Continuing	Continuing	Continuing
Systems Engineering	WR	NSWC/PHD:Port Hueneme, CA	6.069	6.412	Nov 2011	6.104	Dec 2012	-		6.104	Continuing	Continuing	Continuing
Systems Engineering	WR	NSWC/CR:Crane, IN	2.449	1.100	Dec 2011	3.341	Dec 2012	-		3.341	Continuing	Continuing	Continuing
Systems Engineering	WR	NRL:Washington, DC	3.721	2.281	Nov 2011	2.271	Dec 2012	-		2.271	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy			DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *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	Total Prior Years Cost	FY 2012 Cost	FY 2012 Award Date	FY 2013 Base Cost	FY 2013 Base Award Date	FY 2013 OCO Cost	FY 2013 OCO Award Date	FY 2013 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering	C/CPFF	SPA-PSS:Alexandria, VA	9.433	4.667	Jan 2012	5.459	Dec 2012	-		5.459	Continuing	Continuing	Continuing
Systems Engineering	WR	COMPTEVFOR:Norfolk, VA	0.446	0.556	Jan 2012	0.772	Dec 2012	-		0.772	Continuing	Continuing	Continuing
Systems Engineering	C/FFP	CS-Northrop Grumman:Linthicum Heights, MD	10.000	-		-		-		-	0.000	10.000	
Systems Engineering	C/FFP	CS-Lockheed Martin:Moorestown, NJ	10.000	-		-		-		-	0.000	10.000	
Systems Engineering	C/FFP	CS-Raytheon:Sudbury, MA	9.909	-		-		-		-	0.000	9.909	
Systems Engineering	WR	NSWC/PHD (VAB):Virginia Beach, VA	0.730	-		-		-		-	0.000	0.730	
Systems Engineering	C/FP	Program Office System Engineering Staff:Washington, DC	1.855	1.040	Jan 2012	1.125	Dec 2012	-		1.125	Continuing	Continuing	Continuing
Systems Engineering	SS/CPFF	INTEGRITS (via KRATOS):San Diego, CA	0.149	-		-		-		-	0.000	0.149	
Systems Engineering	WR	NAWC AD:Patuxent River, MD	0.501	9.373	Jan 2012	0.542	Dec 2012	-		0.542	Continuing	Continuing	Continuing
Systems Engineering	WR	SCSC Wallops:Wallops Island, VA	0.037	0.092	Jan 2012	0.081	Dec 2012	-		0.081	Continuing	Continuing	Continuing
Systems Engineering	WR	SPAWAR:San Diego, CA	0.028	-		-		-		-	0.000	0.028	
Systems Engineering	C/FPIF	TD Contractor Raytheon:Sudbury, MA	89.751	30.249	Oct 2011	-		-		-	0.000	120.000	
Systems Engineering	WR	NAVFAC MID-ATLANTIC:Pearl Harbor, HI	4.026	-		-		-		-	0.000	4.026	

Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *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	Total Prior Years Cost	FY 2012 Cost	FY 2012 Award Date	FY 2013 Base Cost	FY 2013 Base Award Date	FY 2013 OCO Cost	FY 2013 OCO Award Date	FY 2013 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering	C/FPIF	TD Contractor Northrop Grumman:Linthicum Heights, MD	89.751	30.249	Oct 2011	-		-		-	0.000	120.000	
Systems Engineering	C/FPIF	TD Contractor Lockheed Martin:Moorestown, NJ	89.751	30.249	Oct 2011	-		-		-	0.000	120.000	
Systems Engineering	MIPR	ARL:Adelphi, MD	0.206	0.642	Jan 2012	0.560	Dec 2012	-		0.560	Continuing	Continuing	Continuing
Systems Engineering	C/CPIF	TBD-AMDR-S/RSC EMD:Not Specified	-	-		159.990	Nov 2012	-		159.990	Continuing	Continuing	Continuing
		Subtotal	530.332	160.049		217.533		-		217.533			

Remarks

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

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2012 Cost	FY 2012 Award Date	FY 2013 Base Cost	FY 2013 Base Award Date	FY 2013 OCO Cost	FY 2013 OCO Award Date	FY 2013 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Support Management Services	SS/FFP	BAE Systems:Rockville, MD	5.319	-		-		-		-	0.000	5.319	
Support Management Services	C/CPFF	SPA-PSS:Alexandria, VA	9.206	2.675	Jan 2012	2.719	Dec 2012	-		2.719	Continuing	Continuing	Continuing
Travel	Allot	PEOIWS2:Washington, DC	0.511	0.200	Jan 2012	0.203	Dec 2012	-		0.203	Continuing	Continuing	Continuing
DAWDF	Various	N/A:N/A	0.513	-		-		-		-	0.000	0.513	
Support Management Services	WR	NSWC/IHD:Indian Head, MD	1.142	-		-		-		-	0.000	1.142	
Support Management Services	WR	NSWC/DD:Dahlgren, VA	-	3.358	Nov 2011	3.166	Dec 2012	-		3.166	Continuing	Continuing	Continuing
		Subtotal	16.691	6.233		6.088		-		6.088			

Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy			DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604501N: *Advanced Above Water Sensors*	PROJECT 3186: *Air and Missile Defense Radar*	

	Total Prior Years Cost	FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	547.023	166.282		223.621		-		223.621			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2013 Navy		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604501N: *Advanced Above Water Sensors*	PROJECT 3186: *Air and Missile Defense Radar*

Exhibit R-4A, RDT&E Schedule Details: PB 2013 Navy		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *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	2011	4	2012
System Readiness Review (SRR)	3	2011	3	2011
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)	1	2013	1	2013
Engineering & Manufacturing Development (EMD)	1	2013	4	2016
EMD HW Delta PDR	2	2013	2	2013
EMD SW / System Delta PDR	3	2013	3	2013
EMD HW Critical Design Review (CDR)	2	2014	2	2014
EMD SW / System Critical Design Review (CDR)	3	2014	3	2014
EMD Testing	2	2014	4	2016
Milestone C (MS C) / Low Rate Initial Production Decision Review (LRIP DR)	1	2017	1	2017

Exhibit R-2A, RDT&E Project Justification: PB 2013 Navy			DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604501N: *Advanced Above Water Sensors*	PROJECT 3187: *Periscope Detection*	

COST ($ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
3187: *Periscope Detection*	3.238	14.509	1.730	-	1.730	-	-	-	-	0.000	19.477
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

Periscope Detection: The CVN Periscope Detection Radar program, AN/SPS-74(V)2, 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, developed in PE 0603553N, Surface Antisubmarine Warfare. System Engineering efforts under RDT&E funding will support the conversion of the Advanced Demonstration Model (ADM) variant currently installed to a production representative model that addresses manufacturability, supportability and reliability aspects as well as full system certification. In addition, funding will develop the Periscope Detection and Discrimination (PDD) Interface for AN/SPQ-9B Radar.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2011	FY 2012	FY 2013
Title: Periscope Detection	3.238	14.509	1.730
Articles:	0	0	0
FY 2011 Accomplishments: Continued design and development of AN/SPS-74(V)2 and conducted Critical Design Review (CDR).			
FY 2012 Plans: Begin First Article Testing for AN/SPS-74(V)2 to include Environmental Qualification Testing (EQT) and below deck shock testing. Begin AN/SPQ-9B Radar PDD interface development and testing. Begin planning for Independent Operational Test and Evaluation (IOT&E).			
FY 2013 Plans: Complete First Article Testing for AN/SPS-74(V)2, install Land Based Test Site system, perform software verification, conduct Factory Acceptance Test (FAT), and conduct Independent Operational Test and Evaluation (IOT&E). Complete AN/SPQ-9B Radar PDD interface development and testing.			
Accomplishments/Planned Programs Subtotals	3.238	14.509	1.730

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
• OPN/2040: *0204228N/2040 Radar Support (OPN)*	6.962	10.618	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	27.507

Exhibit R-2A, RDT&E Project Justification: PB 2013 Navy		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *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 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
• OMN/2980: *0204228N/2980 Radar Support (OPN)*	0.000	0.000	13.256	0.000	13.256	16.405	9.441	7.253	4.563	Continuing	Continuing

D. Acquisition Strategy

Current Program supports 9 total units - 8 for installation onboard CVNs (includes upgrade of 4 Advanced Demonstration Models (ADMs) from (V)1 to (V)2 configuration) and one (1) LBTS. Two systems will be procured and installed beyond the FYDP.

E. Performance Metrics

- Complete AN/SPS-74(V)2 IOT&E
- Complete AN/SPQ-9B PDD Interface Development and Testing
- Complete AN/SPS-74(V)2 First Article Test

Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy			DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *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	Total Prior Years Cost	FY 2012 Cost	FY 2012 Award Date	FY 2013 Base Cost	FY 2013 Base Award Date	FY 2013 OCO Cost	FY 2013 OCO Award Date	FY 2013 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Engineering Design Support	SS/CPFF	JHU/APL:Laurel, MD	2.071	0.890	Jan 2012	-		-		-	0.000	2.961	
Primary Hardware Development	SS/CPFF	NGC:Melville, NY	8.760	3.990	Feb 2012	-		-		-	0.000	12.750	
Engineering Design Support	WR	NSWC/ Dahlgren:Dahlgren, VA	2.270	-		-		-		-	0.000	2.270	
Primary Hardware Development	SS/CPFF	3 Phoenix:Fairfax, VA	9.109	6.621	Feb 2012	1.230	Jan 2013	-		1.230	0.000	16.960	
		Subtotal	22.210	11.501		1.230		-		1.230	0.000	34.941	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2012 Cost	FY 2012 Award Date	FY 2013 Base Cost	FY 2013 Base Award Date	FY 2013 OCO Cost	FY 2013 OCO Award Date	FY 2013 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Test and Evaluation	WR	NSWC/PHD:Virginia Beach, VA	6.494	0.633	Nov 2011	0.500	Dec 2012	-		0.500	0.000	7.627	
Test and Evaluation	WR	OPTEVFOR:Norfolk, VA	0.150	0.005	Jan 2012	-		-		-	0.000	0.155	
Test and Evaluation	WR	NSWC/PHD:Port Hueneme, CA	-	1.868	Nov 2011	-		-		-	0.000	1.868	
Test and Evaluation	WR	NSWC/Crane:Crane, IN	2.227	0.050	Jan 2012	-		-		-	0.000	2.277	
Test and Evaluation	WR	NSWC/Corona:Corona, CA	-	0.052	Nov 2011	-		-		-	0.000	0.052	
Test and Evaluation	WR	NRL:Washington, DC	1.271	0.400	Nov 2011	-		-		-	0.000	1.671	
		Subtotal	10.142	3.008		0.500		-		0.500	0.000	13.650	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2012 Cost	FY 2012 Award Date	FY 2013 Base Cost	FY 2013 Base Award Date	FY 2013 OCO Cost	FY 2013 OCO Award Date	FY 2013 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Support Management Services	SS/CPFF	GCAS:San Marcos, CA	0.051	-		-		-		-	0.000	0.051	

Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *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	Total Prior Years Cost	FY 2012 Cost	FY 2012 Award Date	FY 2013 Base Cost	FY 2013 Base Award Date	FY 2013 OCO Cost	FY 2013 OCO Award Date	FY 2013 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Support Management Services	C/CPAF	DTI:Norfolk, VA	0.063	-		-		-		-	0.000	0.063	
DAWDF	Allot	N/A:N/A	0.036	-		-		-		-	0.000	0.036	
		Subtotal	0.150	-		-		-		-	0.000	0.150	

	Total Prior Years Cost	FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	32.502	14.509		1.730		-		1.730	0.000	48.741	

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2013 Navy		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *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 2013 Navy		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *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)2 Software Support	1	2011	4	2017
AN/SPS-74(V)2 CDR	2	2011	2	2011
PDD Interface Development and Testing for SPQ-9B	1	2012	1	2013
AN/SPS-74(V)2 Production and Installation (Contract Award 2Q FY12)	2	2012	4	2017
AN/SPS-74(V)2 First Article Test / Factory Acceptance Test	2	2012	3	2013
AN/SPS-74(V)2 LBTS Installation	3	2013	3	2013
AN/SPS-74(V)2 Factory Acceptance Test	4	2013	4	2013
AN/SPS-74(V)2 IOT&E	4	2013	4	2013

Exhibit R-2A, RDT&E Project Justification: PB 2013 Navy			DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604501N: *Advanced Above Water Sensors*	PROJECT 3188: *Dual-Band Radar*	

COST ($ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
3188: *Dual-Band Radar*	11.276	10.291	12.042	-	12.042	18.999	14.266	8.428	6.975	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

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 interface with Battle Force Tactical Trainer (BFTT): FY12-14 supports the design, development, and testing of an interface between the DBR and BFTT (AN/USQ-46) system that will provide training to enhance combat readiness for the CVN 78 crew. The DBR/BFTT interface development project initiates with the FY12 contract award and continues with validation testing in FY14.

DBR CVN 78 Testing and Certification: Funding in FY13-FY17 supports DBR At-Sea Test and Evaluation (T&E), Environmental Testing, DBR Surface Tracks through Cooperative Engagement Capability (CEC) and DBR Systems Certification in support of CVN 78.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2011	FY 2012	FY 2013
Title: RADAR UPGRADES TECHNOLOGY INSERTION	5.736	7.954	8.288
Articles:	0	0	0
FY 2011 Accomplishments: - Continued Volume Search Radar (VSR) radome development and testing efforts. Initiated material procurement and drawing updates. - Provided integration support and defined requirements for specification changes. - Provided systems, software and hardware engineering support for combat system integration and integration with TPX-42. - Conducted DBR Common Array Power System (CAPS) study to determine design model modifications needed to make the power system compatible with system specifications.			
FY 2012 Plans: - Finalize VSR development and testing.			

Exhibit R-2A, RDT&E Project Justification: PB 2013 Navy		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *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 2011	FY 2012	FY 2013
- Conduct 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. ***FY 2013 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. - Provide technical support to reformat DBR messages necessary to meet the Cooperative Engagement Capability (CEC) Interface requirements and to complete DBR element certification to the overall combat system certification for CVN 78.			
Title: RADAR UPGRADES GOVERNMENT ENGINEERING SERVICES	4.272	1.906	3.344
Articles:	0	0	0
FY 2011 Accomplishments: - Prepared test documentation (test plans/procedures) in support of DBR EMI testing efforts. - Began assessment of VSR Radome Performance. - Provided required engineering to achieve technology improvements for Dual Band Radar (DBR). - Provided systems engineering expertise to assist contractor in determining adequate CAPS design modification. - Conducted assessment of system level element certification plan. ***FY 2012 Plans:*** - 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. - Provide Government Engineering Services in support of DBR BFTT integration for CVN 78. - Continue DBR EMI testing efforts. - Complete assessment of VSR Radome Performance. ***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. - Provide Government Engineering Services required to complete DBR element certification to support overall combat system certification for CVN 78.			
Title: RADAR UPGRADES PROGRAM MANAGEMENT	1.268	0.431	0.410

Exhibit R-2A, RDT&E Project Justification: PB 2013 Navy		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *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 2011	FY 2012	FY 2013
Articles:	0	0	0
FY 2011 Accomplishments: - Provided Program Management and logistics support for radar upgrades and technology insertion for the MFR/VSR/DBR radars. - Performed analysis of the system specifications for CAPS redesign. ***FY 2012 Plans:*** - Continue to provide Program Management and logistics support for radar upgrades and technology insertion for the MFR/VSR/DBR radars. ***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.			
Accomplishments/Planned Programs Subtotals	11.276	10.291	12.042

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
• OPN/2980: *BLI 2980/OPN Items Less Than $5M*	0.000	0.000	4.900	0.000	4.900	3.269	7.418	11.700	16.500	0.000	43.787
• OMN/0702228N: *0702228N/1C2C/O&M,N*	0.000	0.000	1.512	0.000	1.512	3.239	3.873	3.440	3.366	0.000	15.430

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)

Exhibit R-2A, RDT&E Project Justification: PB 2013 Navy		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604501N: *Advanced Above Water Sensors*	PROJECT 3188: *Dual-Band Radar*

- Complete Environmental Testing
- Complete DBR Surface Tracks through Cooperative Engagement Capability (CEC)
- Complete DBR Systems Certification
- Complete CAPS redesign

Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy			DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *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	Total Prior Years Cost	FY 2012 Cost	FY 2012 Award Date	FY 2013 Base Cost	FY 2013 Base Award Date	FY 2013 OCO Cost	FY 2013 OCO Award Date	FY 2013 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Government Engineering Support	WR	Other Government Activities:Various	1.143	-		-		-		-	0.000	1.143	
Government Engineering Support	WR	NSWC/ Dahlgren:Dahlgren, VA	3.246	0.951	Nov 2011	1.306	Dec 2012	-		1.306	Continuing	Continuing	Continuing
Government Engineering Support	WR	NSWC/PHD:Port Hueneme, CA	2.767	-		1.176	Dec 2012	-		1.176	Continuing	Continuing	Continuing
Government Engineering Support	WR	NSWC/Crane:Crane, IN	4.010	0.380	Jan 2012	0.491	Dec 2012	-		0.491	Continuing	Continuing	Continuing
Government Engineering Support	WR	NRL:Washington, DC	3.725	-		-		-		-	0.000	3.725	
Government Engineering Support	SS/CPFF	JHU/APL:Baltimore, MD	0.300	0.362	Dec 2011	0.121	Dec 2012	-		0.121	Continuing	Continuing	Continuing
Government Engineering Support	MIPR	NSMA:Arlington, VA	0.903	-		-		-		-	0.000	0.903	
Government Engineering Support	SS/CPFF	GTRI:Atlanta, GA	0.453	0.139	Feb 2012	-		-		-	0.000	0.592	
Government Engineering Support	WR	NSWC/ Carderock:Philadelphia, PA	0.044	0.034	Dec 2011	0.215	Dec 2012	-		0.215	Continuing	Continuing	Continuing
Systems Engineering	SS/CPFF	Raytheon:Raytheon, Sudbury, MA	12.921	7.954	Jun 2012	8.288	Dec 2012	-		8.288	Continuing	Continuing	Continuing
Systems Engineering	SS/CPAF	Raytheon IDS:San Diego, CA	1.500	-		-		-		-	0.000	1.500	
Systems Engineering	SS/CPFF	General Dynamics AIS:Fairfax, VA	1.000	-		-		-		-	0.000	1.000	
Systems Engineering	SS/CPFF	PMS 320 Syntek:Arlington, VA	0.400	-		-		-		-	0.000	0.400	
		Subtotal	32.412	9.820		11.597		-		11.597			

Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *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	Total Prior Years Cost	FY 2012 Cost	FY 2012 Award Date	FY 2013 Base Cost	FY 2013 Base Award Date	FY 2013 OCO Cost	FY 2013 OCO Award Date	FY 2013 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	C/CPFF	SPA:Washington, DC	1.546	0.431	Jan 2012	0.410	Dec 2012	-		0.410	Continuing	Continuing	Continuing
DAWDF	Allot	N/A:N/A	0.027	-		-		-		-	0.000	0.027	
Travel	Allot	PEOIWS2:Washington, DC	0.100	0.040	Jan 2012	0.035	Dec 2012	-		0.035	0.000	0.175	
Program Management Support	C/CPIF	ALION:Washington, DC	0.026	-		-		-		-	0.000	0.026	
Program Management Support	C/CPFF	CACI:Washington, DC	0.040	-		-		-		-	0.000	0.040	
		Subtotal	1.739	0.471		0.445		-		0.445			

	Total Prior Years Cost	FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	34.151	10.291		12.042		-		12.042			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2013 Navy		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604501N: *Advanced Above Water Sensors*	PROJECT 3188: *Dual-Band Radar*

Exhibit R-4A, RDT&E Schedule Details: PB 2013 Navy		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *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	2011	3	2017
DBR EMI Analysis Testing (Co-Site & Off-ship)	2	2011	4	2013
DBR VSR Radome Performance Assessment	2	2011	2	2012
DBR System Upgrade Technology Insertion	3	2011	4	2017
DBR BFTT Integration for CVN 78	1	2012	4	2014
DBR Testing and Certification to CVN 78	1	2013	4	2017

Exhibit R-2A, RDT&E Project Justification: PB 2013 Navy			DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604501N: *Advanced Above Water Sensors*	PROJECT 3232: *Multi-Mission Signal Processor*	

COST ($ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
3232: *Multi-Mission Signal Processor*	32.624	32.360	14.617	-	14.617	14.894	15.856	16.300	16.510	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

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 51-78 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.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2011	FY 2012	FY 2013
Title: SYSTEMS ENGINEERING	32.624	32.360	14.617
Articles:	0	0	0
FY 2011 Accomplishments: - Preparation for and completion of Engineering Exercises - Continued MMSP design and development - Supported MMSP integration testing with ACB-12 to address all MMSP related issues - Completed transmitter modification development - Maintained 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 - Initiated cruiser variant engineering and design			
FY 2012 Plans: - Preparation for the Multi-Mission Exercise and Qualification Testing - Continue to support MMSP integration testing with ACB-12 to address all MMSP related issues - Installation of Transmitter Modification at CSEDS - 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			
FY 2013 Plans: - Support of Combat System Ship Qualification Trials (CSSQT) testing - Continue to support MMSP integration testing with ACB-12 to address all MMSP related issues			

Exhibit R-2A, RDT&E Project Justification: PB 2013 Navy		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *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 2011	FY 2012	FY 2013
- 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	32.624	32.360	14.617

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
• SCN/2122: *BLI 2122/SCN DDG 51*	2,900.331	2,081.432	3,514.941	0.000	3,514.941	2,014.297	3,002.049	3,508.440	4,048.090	Continuing	Continuing
• OPN/0900: *BLI 0900/OPN DDG Modernization*	288.118	117.522	477.772	0.000	477.772	288.134	516.908	469.812	529.385	Continuing	Continuing

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.

E. Performance Metrics

- Complete DDG Advanced Capability Build 12 (ACB 12) In-Process Review (IPR) #5
- Complete DDG SPY-1D(V) Engineering Exercise (EE) #1
- Complete DDG Jamex #2
- Complete DDG SPY-1D(V) Engineering Exercise (EE) #2
- Complete DDG Qualification Testing
- 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 CG ACB 12 System Readiness Review (SRR)
- Complete CG ACB 12 Focus Day

Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy			DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *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	Total Prior Years Cost	FY 2012 Cost	FY 2012 Award Date	FY 2013 Base Cost	FY 2013 Base Award Date	FY 2013 OCO Cost	FY 2013 OCO Award Date	FY 2013 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
SYSTEM ENGINEERING	SS/CPFF	Lockheed Martin:Moorestown, NJ	77.236	24.855	Jan 2012	8.615	Dec 2012	-		8.615	Continuing	Continuing	Continuing
SYSTEM ENGINEERING	C/CPFF	AEGIS Techrep:Moorestown, NJ	1.084	1.527	Jan 2012	1.260	Dec 2012	-		1.260	Continuing	Continuing	Continuing
SYSTEM ENGINEERING	SS/FP	APL/JHU:Laurel, MD	1.188	1.121	Jan 2012	0.970	Dec 2012	-		0.970	Continuing	Continuing	Continuing
SYSTEM ENGINEERING	WR	CSCS:Dahlgren, VA	0.513	0.285	Jan 2012	0.210	Dec 2012	-		0.210	Continuing	Continuing	Continuing
SYSTEM ENGINEERING	WR	NRL:Washington, DC	0.960	0.799	Jan 2012	0.664	Dec 2012	-		0.664	Continuing	Continuing	Continuing
SYSTEM ENGINEERING	WR	NSWC/DD:Dahlgren, VA	1.153	1.487	Jan 2012	1.128	Nov 2012	-		1.128	Continuing	Continuing	Continuing
SYSTEM ENGINEERING	WR	NSWC/CR:Crane, IN	0.980	0.810	Jan 2012	0.583	Nov 2012	-		0.583	Continuing	Continuing	Continuing
SYSTEM ENGINEERING	WR	NSWC/PHD:Port Hueneme, CA	1.110	1.049	Jan 2012	0.805	Nov 2012	-		0.805	Continuing	Continuing	Continuing
		Subtotal	84.224	31.933		14.235		-		14.235			

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2012 Cost	FY 2012 Award Date	FY 2013 Base Cost	FY 2013 Base Award Date	FY 2013 OCO Cost	FY 2013 OCO Award Date	FY 2013 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Travel	Allot	PEOIWS2:Washington, DC	0.100	0.060	Jan 2012	0.060	Nov 2012	-		0.060	Continuing	Continuing	Continuing
PSS	C/CPFF	SPA-PSS:Washington, DC	0.550	0.367	Nov 2011	0.322	Nov 2012	-		0.322	Continuing	Continuing	Continuing
		Subtotal	0.650	0.427		0.382		-		0.382			

	Total Prior Years Cost	FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	84.874	32.360		14.617		-		14.617			

Remarks

Discontinued ACB 14 MMSP for AN/SPY-1B(V) Cruiser variant, resulting in a reduction of $11.070 in FY13.

Exhibit R-4, RDT&E Schedule Profile: PB 2013 Navy		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *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 2013 Navy		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *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 Advanced Capability Build 12 (ACB 12) In Process Review (IPR) # 5	1	2011	1	2011
DDG SPY-1D(V) Engineering Exercise (EE) #1	2	2011	2	2011
DDG Jamming Exercise (JAMEX) #2	4	2011	4	2011
DDG SPY-1D(V) 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
DDG Aegis Light Off (ALO)	2	2013	2	2013
DDG Combat System Ship Qualification Trials (CSSQT)	2	2014	2	2014
DDG Final Certification	1	2015	1	2015
DDG Commercial Off The Shelf (COTS) Refresh - Engineering Change Proposals (ECP)	1	2015	4	2017
CG ACB 12 System Readiness Review (SRR)	3	2011	3	2011
CG ACB 12 Focus Day	3	2011	3	2011

Exhibit R-2A, RDT&E Project Justification: PB 2013 Navy			DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604501N: *Advanced Above Water Sensors*	PROJECT 3301: *Improved Capabilities SPY-1 Radar*	

COST ($ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
3301: *Improved Capabilities SPY-1 Radar*	3.481	3.629	3.506	-	3.506	2.063	0.935	0.954	0.962	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

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 2011	FY 2012	FY 2013
Title: Improved Capabilities SPY-1 Radar	3.481	3.629	3.506
Articles:	0	0	0
FY 2011 Accomplishments: - Initiated requirements development and design of 10KW Traveling Wave Tube (TWT) and Continuous Wave Illuminator (CWI) Microwave Tubes - Initiated design and development of sidewall capacitor monitoring circuit for Transmitter High Voltage Power Supply (HVPS) - Initiated design and development and environmental testing for 10kW TWT - Initiated improvements to design of Cathode for MK 99 CWI TWT			
FY 2012 Plans: - Continue design and development of Sidewall Capacitor monitoring circuit for HVPS - Continue design, development, Environmental Testing for 10kW TWT - Initiate design improvements to filament for Switch Tube			
FY 2013 Plans: - Finalize design and development of Sidewall Capacitor monitoring circuit for HVPS - Finalize design and development of 10kW TWT - Continue design improvements to filament for Switch Tube - Initiate design and development of Cross Fielded Amplifier Microwave Tube			
Accomplishments/Planned Programs Subtotals	3.481	3.629	3.506

Exhibit R-2A, RDT&E Project Justification: PB 2013 Navy		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604501N: *Advanced Above Water Sensors*	PROJECT 3301: *Improved Capabilities SPY-1 Radar*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
• OPN/2980: *Items Less Than $5M*	0.000	0.000	2.400	0.000	2.400	9.593	6.400	1.500	1.630	Continuing	Continuing
• O&MN/0702228N: *O&M,N AEGIS Wholeness SPY Transmitter Reliability*	0.000	0.000	3.312	0.000	3.312	3.928	4.449	2.415	6.042	Continuing	Continuing

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 EI Switch Improvement Design/Development
- Complete Sidewall Capacitor Monitoring Circuit
- Complete 10kW Monitoring Circuit development
- Complete Cross-Field Amplifier/Switch Tube (CFA/SWT) MWT Improvement Design Development
- Complete MWT Improvement Design/Development

Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *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	Total Prior Years Cost	FY 2012 Cost	FY 2012 Award Date	FY 2013 Base Cost	FY 2013 Base Award Date	FY 2013 OCO Cost	FY 2013 OCO Award Date	FY 2013 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
SYSTEM ENGINEERING	C/CPFF	Raytheon:Sudbury, MA	0.700	0.400	Jan 2012	0.600	Dec 2012	-		0.600	Continuing	Continuing	Continuing
SYSTEM ENGINEERING	WR	NSWC/Crane, IN:Crane, IN	2.781	3.229	Jan 2012	2.906	Nov 2012	-		2.906	Continuing	Continuing	Continuing
		Subtotal	3.481	3.629		3.506		-		3.506			

	Total Prior Years Cost	FY 2012 Cost	FY 2012 Award Date	FY 2013 Base Cost	FY 2013 Base Award Date	FY 2013 OCO Cost	FY 2013 OCO Award Date	FY 2013 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	3.481	3.629		3.506		-		3.506			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2013 Navy		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *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 2013 Navy		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *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	3	2011	4	2013
Cabinet Modification/Side Wall Capacitor	3	2011	4	2013
A/B Electric Switch Improvement Design/Development	4	2012	3	2014
Travel Wave Tube (TWT) Monitoring	4	2012	1	2014
Cross Field Amplifier (CFA)/Switch Tube (SWT) Microwave Tube (MWT) Improvement Design/Development	1	2013	1	2015
MWT Improvement Design/Development	1	2015	4	2017

Exhibit R-2A, RDT&E Project Justification: PB 2013 Navy			DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604501N: *Advanced Above Water Sensors*	PROJECT 9999: *Congressional Adds*	

COST ($ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
9999: *Congressional Adds*	-	20.000	-	-	-	-	-	-	-	0.000	20.000
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

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 2011	FY 2012
Congressional Add: Adv Radar Innovation Fund - Surf (Cong)	-	20.000
FY 2012 Plans: N/A		
Congressional Adds Subtotals	-	20.000

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

N/A

E. Performance Metrics

Congressional Add.