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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy									DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 1319: Research, Development, Test & Evaluation, Navy BA 7: Operational Systems Development				R-1 ITEM NOMENCLATURE PE 0205620N: Surface ASW Cmbt Sys Integr							
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	21.807	41.630	32.877	0.000	32.877	26.992	33.083	42.475	34.347	Continuing	Continuing
1916: Surface ASW System Improvement	21.009	41.630	32.877	0.000	32.877	26.992	33.083	42.475	34.347	Continuing	Continuing
9999: Congressional Adds	0.798	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	24.669
A. Mission Description and Budget Item Justification											
The 'Vision for Anti-Submarine Warfare (ASW) Superiority' provides a foundation on which to base the operational principles and force attributes needed to prevail against future adversary submarines. Fully aligned with 'A Cooperative Strategy for 21st Century Seapower', it is intended to establish a consistent sense of urgency, and guide the development of a comprehensive long-term strategy and attendant execution plans to achieve and sustain a strategic and operational advantage, and maximize the potential for tactical advantage in future operationally-relevant environments. Our nation and maritime forces face an evolving submarine threat of increasing lethality. Evolving submarine technologies offer enhanced stealth, speed, endurance, weapons and operational proficiency, trends foretelling that the adversary submarine of the future will have a significantly larger sphere of influence, while presenting less vulnerability to ASW forces. Furthermore, the effective offensive engagement range of the adversary submarine of the future will continue to match or outrange individual U.S. and multinational platform sensors and weapons in many tactical environments. ASW forces must be effective in all operating environments, ranging from the deep open ocean to the shallow coastal waters and littorals. The noisy undersea environment, coupled with stealthier submarines, challenges the ability of our sensors to detect, localize, and track threat submarines. The objective of this Program Element (PE) is to significantly improve existing Surface Ship Undersea Warfare (USW) sonar system capabilities through quick and affordable development/integration of emergent, transformational technologies in support of Littoral ASW, Theater ASW, Mine Reconnaissance, and overall Sea Shield efforts required to pace the threat. Detection and classification play uniquely vital roles in the success of any ASW campaign. To be effective against increasingly stealthy threats in an often ambiguous undersea environment, future sensors must be environmentally adaptive, have very low false alarm rates, and exploit the full range of current and future submarine detection vulnerabilities. Project 1916's primary mission is to improve AN/SQQ-89(V) Measures Of Performance (MOP) by enhancing detection, tracking, classification, active, and sonobuoy data processing and display capabilities, and increasing acoustic sensor frequency bandwidth (Operational Requirements Document #667-76-05 titled 'AN/SQQ-89 Improvement Program' dated 31-Jan-05, Test and Evaluation Master Plan 801 and 802-2 (TEMP 801 & TEMP 802-2)). This project takes advantage of the AN/SQQ-89(V) Open System Architecture (OSA) and Acoustic Rapid Commercial-Off-The-Shelf (COTS) Insertion (ARCI) initiatives to integrate a Multi-Function Towed Array (MFTA) with active sonar bistatics (Echo Tracker Classifier - ETC), an ARCI passive ASW processor, and torpedo defense capabilities (Forward and Aft sector coverage with Wake Homer protection). This COTS-based Surface Ship ASW combat system, the AN/SQQ-89A(V)15, is currently planned as a backfit program											

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for both CG47 (CG59-73 Baseline 3 and 4) and DDG51 (All FLT I/II/IIA) class ships. The Open Architecture (OA) (level 3 compliant) of the AN/SQQ-89A(V)15 system drives the Advanced Capability Build (ACB) spiral development process and provides budget flexibility to make COTS/OA technology solutions and ARCI-type initiatives affordable. This will be accomplished via the incorporation of select Pre-Planned Product Improvements (P3I) and emergent, transformational ASW technologies delivered to the AN/SQQ-89(V) prime integrator every two years. ASW technology implementation will take advantage of improvements developed under the submarine Advanced Processing Build (APB) program and will in turn share unique improvements developed under this program with the submarine and surveillance ASW communities. Project 1916 also includes funding for the Surface Ship Enhanced Measurement Program (SSEMP), which will measure the performance of existing and new Surface Ship ASW combat systems and enables data based assessment of the capabilities and shortfalls in the performance of these systems in realistic scenarios. Project 1916 also includes funding, starting in FY 2009, for the Surface ASW Synthetic Training (SAST) program (under the Surface Ship ASW Synthetic Signatures Generation and Training Acceleration Initiative), including the development of a high fidelity acoustic simulation of a surface ship sonar. This effort will accelerate the implementation and integration of the Submarine Multi-Mission Team Trainer (SMMTT) Navy Continuous Training Environment (NCTE) solution/baseline to the surface ship paradigm. The training, skills, and proficiency of all personnel supporting ASW operations must be approached in a coordinated, concentrated, and properly-resourced manner to overcome past deficiencies. The full spectrum of training must be addressed, from synthetic to the experience gained from actual and exercise operations. Technology must be exploited fully to provide assistance to operators, tacticians, and commanders, in order to improve and maintain their capability against the evolving threat. FY 2009 Congressional Add - Project 9C61A included FY 2009 Congressional Add funding for 'Long Range Synthetic Aperture Sonar for ASW'. Funding will be used to initiate processor prototype system architecture, requirements modeling, and performance predictions for an ASW Synthetic Aperture Sonar system utilizing the current Navy sonar assets of an AN/SQS-53 hull mounted sonar and the MFTA.		

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B. Program Change Summary (\$ in Millions)					
	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	22.441	41.803	0.000	0.000	0.000
Current President's Budget	21.807	41.630	32.877	0.000	32.877
Total Adjustments	-0.634	-0.173	32.877	0.000	32.877
• Congressional General Reductions		-0.173			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	-0.027	0.000			
• SBIR/STTR Transfer	-0.607	0.000			
• Program Adjustments	0.000	0.000	32.877	0.000	32.877
Congressional Add Details (\$ in Millions, and Includes General Reductions)					
Project: 9999: Congressional Adds					
Congressional Add: LONG RANGE SYNTHETIC APERATURE SONAR (SAS) FOR ASW					
Congressional Add Subtotals for Project: 9999					
Congressional Add Totals for all Projects					
Change Summary Explanation					
Technical: Not applicable.					
Schedule: Not applicable.					
FY11 from previous President's Budget is shown as zero because no FY11-15 data was presented in President's Budget 2010.					

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APPROPRIATION/BUDGET ACTIVITY 1319: <i>Research, Development, Test & Evaluation, Navy</i> BA 7: <i>Operational Systems Development</i>				R-1 ITEM NOMENCLATURE PE 0205620N: <i>Surface ASW Cmbt Sys Integr</i>				PROJECT 1916: <i>Surface ASW System Improvement</i>			
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
1916: <i>Surface ASW System Improvement</i>	21.009	41.630	32.877	0.000	32.877	26.992	33.083	42.475	34.347	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The Surface ASW Systems Improvements Project will support essential performance enhancements to AN/SQQ-89(V) and Surface Ship Sonar Systems. This project will improve AN/SQQ-89(V) MOP by enhancing detection, tracking, classification, active and sonobuoy data processing and display capabilities, and increasing acoustic sensor frequency bandwidth (Operational Requirements Document #667-76-05 titled 'AN/SQQ-89 Improvement Program' dated 31-Jan-05), Test and Evaluation Master Plan 801 and 802-2 (TEMP 801 & TEMP 802-2).

This project will take advantage of the AN/SQQ-89(V) OSA and ARCI initiatives to integrate an MFTA with active sonar bistatics (ETC), an ARCI passive ASW processor, and torpedo defense capabilities (Forward and Aft sector coverage with Wake Homer protection). This COTS-based Surface Ship ASW combat system, the AN/SQQ-89A(V)15, is currently planned as a backfit program for both CG47 (CG59-73 Baseline 3 and 4) and DDG51 (All FLT I/II/IIA) class ships. This project has delivered the AN/SQQ-89A(V)15 Build 0 Pre-Production Prototype, performed installation on board CG73, and conducted subsequent Developmental Test & Evaluation (DT&E) and Initial Operational Test & Evaluation (IOT&E) where the system was found 'Operationally Effective' by Command Operational Test and Evaluation Force (COMOPTEVFOR).

The OSA and high performance COTS processing hardware on ships fielded with the AN/SQQ-89A(V)15 combat system provides an opportunity to integrate select P3I as well as emergent, transformational ASW technological improvements that were previously unachievable. The Undersea Warfare (USW) suites on these ships will require periodic upgrades to remain effective well into the 21st century and to pace the threat. Software upgrades target capability increases in high interest areas as prescribed by the Fleet and captured in campaign analysis. To achieve this, this project will package and deliver incremental upgrades every two years to the AN/SQQ-89A(V)15 production program via an ACB spiral development process (ACB-09, ACB-11, ACB-13, etc.) by inserting maturing USW technologies, such as enhancements to improve USW performance in the littoral, reduced manning on AN/SQQ-89(V) equipped ships (operator efficiency upgrades via the implementation of robust embedded data record and replay capability and active/passive sonar simulation/stimulation), Detection/Classification/Localization active/passive processing upgrades (passive sonar automated detection and classification processing bell-ringers from the ASW Community-of-Interest, detect and track through maneuvers, integration of MH-60R mission systems with the AN/SQQ-89A(V)15 combat system, integration of

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Mid-Frequency active detection improvements, false-alarm rate reduction, clutter reduction, and integration of ASW Community-of-Interest improved acoustic intercept and small-object avoidance), ASW Multi-Sensor integration (acoustic similar-source fusion and implementation of integrated shipboard system data, and ASW combat display architecture and reduced watch-team operational concept implementation), distributed engagement management (Network Centric Enterprise Services implementation, new displays and decision aids, ASW Community-of-Interest model capabilities implementation), marine mammal detection and mitigation, Multi-Static Active ASW, Multi-Frequency Acoustic Communications (MF ACOMMS) between Surface Combatants and Submarines, new RAPTOR radar processing, and upgraded technologies such as algorithm improvements, increased Passive Narrow Band (PNB) frequency, improved Extended Echo Ranging (EER), and beamformer improvements. A rigorous testing program is also required to ensure that these performance enhancements are operationally effective and suitable.						
Project 1916 also includes funding for the Surface Ship Enhanced Measurement Program (SSEMP), which will measure the performance of existing and new Surface Ship ASW combat systems and enables data based assessment of the capabilities and shortfalls in the performance of these systems in realistic scenarios.						
Project 1916 also includes funding, starting in FY 2009, for the Surface ASW Synthetic Training (SAST) program (under the Surface Ship ASW Synthetic Signatures Generation and Training Acceleration Initiative), including the development of a high fidelity acoustic simulation of a surface ship sonar based on the Improved Performance Sonar (IPS) baseline. This effort will accelerate the implementation and integration of the Submarine Multi-Mission Team Trainer (SMMTT) Navy Continuous Training Environment (NCTE) solution/baseline to the surface ship paradigm for high fidelity active and passive simulation for the improvement of operator proficiency, development of a rapid acoustic reconstruction capability, and to ensure SAST interoperability via the AEGIS Combat Training System (ACTS) and Battle Force Tactical Trainer (BFTT). SAST capability will be fielded throughout the force, via ACB updates to the AN/SQQ-89A(V)15 system, while spiraling in additional ASW sensors, as well as full High Level Architecture (HLA)/NCTE interoperability.						
B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
SQQ-89A(V)15 Surface Ship ASW Advanced Capability Build (ACB) Development		9.704	27.630	23.177	0.000	23.177
Develop enhancements to the AN/SQQ-89A(V)15 Open System Architecture (OSA) via the integration of transformational technologies through an ACB spiral development process. Items include hull-mounted Acoustic Intercept (ACI) sensor, ACI performance predictions and signal injection capabilities, Marine Mammal Detection and Mitigation (MMDM) capability, hull array adaptive beamformer and towed array shape compensated beamformer improvements via the Beamformer Functional Segment (BFFS), Mid-Frequency Active (MFA) Cooperative Organic Mine Defense (COMID) mine avoidance upgrades, MFA rapid replay and multi-waveform tracker, Hull Passive Processing Functional Segment						

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B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
(HPPFS) improvements, Sensor Performance Prediction Functional Segment (SPPFS) improvements, Low Frequency Multi-Static Functional Segment (LFMFS) improvements, Undersea Warfare Control Functional Segment (UCFS) improvements, Supportability Functional Segment (SupFS) improvements, Recording Functional Segment (RecFS) improvements, Common System Services/Mission Package Services (CSS/MPS) improvements, full bandwidth towed array passive ASW and automated Torpedo Detection, Classification, and Localization (TDCL) algorithm improvements (active/passive) within the Torpedo Recognition and Alertment Functional Segment (TRAFS) necessary to extend detection ranges and reduce false alert/alarm rates, new Data Fusion Functional Segment (DFFS) sensor to reduce the number of displays required for system operation, Multi-Frequency Acoustic Communications (MF ACOMMS) development, integration of MH-60R mission systems with the AN/SQQ-89A(V)15 combat system, Extended Echo Ranging (EER) "Distant Thunder" integration into the AN/SQQ-89A(V)15 Surface Common Airborne Undersea Sensor System (CAUSS) Functional Segment airframe sensor processing suite, explosive source integration with AN/SQQ-89A(V)15 processes, simplification of displays and active processing, incorporation of all Improved Performance Sonar (IPS) and Scaled Improved Performance Sonar (SIPS) features, and a Sonar Logger capability to significantly reduce operator data logging requirements. These items will be integrated and delivered to the CG47 and DDG51 class AN/SQQ-89A(V)15 backfit production programs via ACB updates. Import advanced development capabilities from the submarine Advanced Processing Build (APB) and Acoustic Rapid Commercial-off-the-Shelf (COTS) Insertion (ARCI) projects.						
Resolve/troubleshoot issues/deficiencies that arise from the AN/SQQ-89(V) Surface Ship ASW Test & Evaluation program. Rapidly address and correct problems/deficiencies in processing, capability or operations within the following areas within the AN/SQQ-89(V) USW combat system architecture; sensor processing, acoustics, MMDM, fire control, contact management, performance prediction, operator productivity and on-board training, MFTA, Digital Fire Control Interface (DFCI), Remote Mine-Hunting System (RMS), MFA processing, and adaptive beamforming.						

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B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<i>FY 2009 Accomplishments:</i> Developed enhancements to the AN/SQQ-89A(V)15 OSA via the integration of transformational technologies through an ACB spiral development process (ACB-11). <i>FY 2010 Plans:</i> Continue the development of enhancements to the AN/SQQ-89A(V)15 OSA via the integration of transformational technologies through an ACB spiral development process. These enhancements will be integrated and delivered to the CG47 and DDG51 class AN/SQQ-89A(V)15 backfit production programs via ACB updates (ACB-11). Import advanced development capabilities from the submarine Advanced Processing Build (APB) and Acoustic Rapid Commercial-off-the-Shelf (COTS) Insertion (ARCI) projects. <i>FY 2011 Base Plans:</i> Continue the development of enhancements to the AN/SQQ-89A(V)15 OSA via the integration of transformational technologies through an ACB spiral development process (ACB-13). Import advanced development capabilities from the submarine Advanced Processing Build (APB) and Acoustic Rapid Commercial-off-the-Shelf (COTS) Insertion (ARCI) projects.					
AN/SQQ-89(V) Surface Ship ASW Test & Evaluation Program	0.700	0.700	0.700	0.000	0.700
<i>FY 2009 Accomplishments:</i> In support of ACB-11, provided AN/SQQ-89(V) Surface Ship ASW test and evaluation planning support, System Assessment Team (SAT) analysis, updated Test & Evaluation Master Plan (TEMP) to reflect the AN/SQQ-89A(V)15 ACB spiral development program, determined test ship, test location, target requirements, personnel requirements and materials required, developed a test plan based on system configuration, at-sea data requirements, and ship, target, and range availabilities.					

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B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<i>FY 2010 Plans:</i> In support of ACB-11, provide AN/SQQ-89(V) Surface Ship ASW test and evaluation planning support, SAT analysis, determine test ship, test location, target requirements, personnel requirements and materials required, develop a test plan based on system configuration, at-sea data requirements, and ship, target, and range availabilities, coordinate and conduct at-sea tests/trial demonstrations of AN/SQQ-89(V) systems and associated ACB/Technology Insertion (TI) capabilities, provided performance data and environmental analysis, Independent Verification & Validation (IV&V), and modeling and simulation using Measures of Performance (MOP) and Measures Of Effectiveness (MOE) methods. <i>FY 2011 Base Plans:</i> In support of ACB-13, provide AN/SQQ-89(V) Surface Ship ASW test and evaluation planning support, SAT analysis, determine test ship, test location, target requirements, personnel requirements and materials required, develop a test plan based on system configuration, at-sea data requirements, and ship, target, and range availabilities.					
Surface Ship Enhanced Measurement Program (SSEMP) <i>FY 2009 Accomplishments:</i> Measured the performance of existing and new Surface Ship ASW combat systems and data based assessment of the capabilities and shortfalls in the performance of these systems in realistic scenarios. Evaluated the effectiveness of the transition of processing improvements in the surface ship sonar system. Evaluated system operational performance and identify performance deficits that need to be addressed by system processing improvements, employment modifications, and/or training improvements. Established baseline performance and compare operational performance to the predicted sensor performance to establish performance deficit/gain metrics. <i>FY 2010 Plans:</i> Analyze the sonar employment in the operational setting and report results for improvement of training/employment guidance. Perform Fleet exercise data reconstruction and post-test analysis each year.	3.000	3.000	3.000	0.000	3.000

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B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Conduct selected at-sea data collection activities by providing planning support, ship riders, and analyst support. Evaluate prototype sonar employment tactics, sonar processing and automation algorithms, and communication protocols for the detection, classification, tracking, and intra-Fleet hand-off to Fleet ASW assets, and provide summary reports to document results. FY 2011 Base Plans: Analyze the sonar employment in the operational setting and report results for improvement of training/employment guidance. Perform Fleet exercise data reconstruction and post-test analysis each year. Conduct selected at-sea data collection activities by providing planning support, ship riders, and analyst support. Evaluate prototype sonar employment tactics, sonar processing and automation algorithms, and communication protocols for the detection, classification, tracking, and intra-Fleet hand-off to Fleet ASW assets, and provide summary reports to document results.						
Surface ASW Synthetic Training (SAST) Development Program FY 2009 Accomplishments: Began development of a high fidelity acoustic simulation of a surface ship sonar based on the Improved Performance Sonar baseline under the Surface Ship ASW Synthetic Signatures Generation and Training Acceleration Initiative. Accelerate the implementation and integration of the Submarine Multi-Mission Team Trainer (SMMTT) Navy Continuous Training Environment (NCTE) solution/ baseline to the surface ship paradigm for high fidelity active and passive simulation for the improvement of operator efficiency, development of a rapid acoustic reconstruction capability, and to ensure SAST interoperability via the AEGIS Combat Training System (ACTS) and Battle Force Tactical Trainer (BFTT). FY 2010 Plans: Continue development of a high fidelity acoustic simulation of a surface ship sonar based on the Improved Performance Sonar baseline under the Surface Ship ASW Synthetic Signatures Generation and Training Acceleration Initiative. Accelerate the implementation and integration of the SMMTT		7.500	10.300	6.000	0.000	6.000

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B. Accomplishments/Planned Program (\$ in Millions)											
						FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	
NCTE solution/baseline to the surface ship paradigm for high fidelity active and passive simulation for the improvement of operator efficiency, development of a rapid acoustic reconstruction capability, and to ensure SAST interoperability via the ACTS and BFTT. FY 2011 Base Plans: Finalize development/integration and complete qualification testing of a high fidelity acoustic simulation of a surface ship sonar based on the Improved Performance Sonar baseline under the Surface Ship ASW Synthetic Signatures Generation and Training Acceleration Initiative. Accelerate the implementation and integration of the SMMTT NCTE solution/baseline to the surface ship paradigm for high fidelity active and passive simulation for the improvement of operator efficiency, development of a rapid acoustic reconstruction capability, and to ensure SAST interoperability via the ACTS and BFTT. SAST capability will be fielded throughout the force, via ACB updates to the AN/SQQ-89A(V)15 system, while spiraling in additional ASW sensors, as well as full HLA/NCTE interoperability.											
DAWDF FY 2009 Accomplishments: Defense Acquisition Workforce Development Fund						0.105	0.000	0.000	0.000	0.000	
Accomplishments/Planned Programs Subtotals						21.009	41.630	32.877	0.000	32.877	
C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• OPN/2136: AN/SQQ-89 Surface ASW Combat System	104.547	77.124	87.219	0.000	87.219	91.252	98.819	103.938	107.123	Continuing	Continuing
• OPN/0900: DDG Modernization	167.048	144.300	296.691	0.000	296.691	293.847	463.051	476.493	410.169	Continuing	Continuing

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C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• OPN/0960: <i>CG Modernization</i>	165.165	313.149	356.958	0.000	356.958	448.737	575.985	632.640	253.809	Continuing	Continuing
D. Acquisition Strategy											
- Completed AN/SQQ-89A(V)15 Surface Ship ASW Combat System Build 0 Pre-Production Prototype, performed installation, conducted DT&E, and Initial IOT&E 4Q FY 2005. Via an ACB spiral development process, incorporate evolutionary and transformational technologies into AN/SQQ-89A(V)15 production systems (planned for Baseline 3 and 4 CG47 Class and FLT I/II/IIA DDG51 Class hulls) at scheduled intervals to pace the threat. - Awarded new, competitive contract for AN/SQQ-89(V) prime system integrator in FY 2007.											
E. Performance Metrics											
- Deliver incremental capability increases in high interest areas, as prescribed by the Fleet and captured in campaign analysis, every two years to the AN/SQQ-89A(V)15 production program via an ACB spiral development process (ACB-09, ACB-11, ACB-13, etc.) by inserting maturing USW technologies. - Continue ACB-11 development reflecting active capability for Continuous Active Sonar (CAS) including clutter reduction, passive processing from submarine APB-09, SAST, and improvements in contact and data management. Plan for and execute ACB-11 Sea Test in 4Q10. - Continue SAST system development, integration and testing including supporting ACB-11 sea testing in FY10.											

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy											DATE: February 2010			
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Product Development (\$ in Millions)														
				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
SQQ-89 S/W Development/Integration	C/CPFF	AAC NY	2.908	0.200	Dec 2009	0.300	Nov 2010	0.000		0.300	Continuing	Continuing	Continuing	
SQQ-89 S/W Development/Integration	WR	NAVSEA/ DAHLGREN DAHLGREN, VA	0.702	0.520	Nov 2009	0.940	Nov 2010	0.000		0.940	Continuing	Continuing	Continuing	
SQQ-89 S/W Development/Integration	C/CPFF	AM VA	6.722	3.400	Dec 2009	2.000	Nov 2010	0.000		2.000	Continuing	Continuing	Continuing	
SQQ-89 S/W Development/Integration	C/CPFF	GD-AIS VA	9.422	2.200	Dec 2009	1.300	Nov 2010	0.000		1.300	Continuing	Continuing	Continuing	
SQQ-89 S/W Development/Integration	C/CPFF	JHU/APL MD	1.565	2.760	Dec 2009	1.770	Dec 2010	0.000		1.770	Continuing	Continuing	Continuing	
SQQ-89 S/W Development/Integration	C/CPFF	LOCKHEED MARTIN NY	2.355	4.500	Dec 2009	3.250	Nov 2010	0.000		3.250	Continuing	Continuing	Continuing	
SQQ-89 S/W Development/Integration	WR	NAVSEA/ CARDEROCK MD	0.200	1.520	Nov 2009	0.920	Nov 2010	0.000		0.920	Continuing	Continuing	Continuing	
SQQ-89 S/W TDA Support	WR	NAVSEA/ NEWPORT RI	2.348	2.050	Nov 2009	1.075	Nov 2010	0.000		1.075	Continuing	Continuing	Continuing	
SQQ-89 S/W Development/Integration	SS/CPFF	UT/ARL TX	1.696	2.558	Dec 2009	2.680	Dec 2010	0.000		2.680	Continuing	Continuing	Continuing	
SQQ-89 S/W Development/Integration	WR	VAR, VAR WR	2.491	2.898	Dec 2009	1.336	Nov 2010	0.000		1.336	Continuing	Continuing	Continuing	
SAST Development/ Integration	C/CPFF	JHU/APL MD	0.802	3.750	Dec 2009	3.750	Dec 2010	0.000		3.750	Continuing	Continuing	Continuing	

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy											DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 1319: Research, Development, Test & Evaluation, Navy BA 7: Operational Systems Development				R-1 ITEM NOMENCLATURE PE 0205620N: Surface ASW Cmbt Sys Integr				PROJECT 1916: Surface ASW System Improvement					
Product Development (\$ in Millions)													
				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
SAST Development/ Integration	WR	NAVSEA/ CARDEROCK MD	5.391	3.750	Oct 2009	3.750	Nov 2010	0.000		3.750	Continuing	Continuing	Continuing
SAST Development/ Integration	WR	NAVSEA/ NEWPORT RI	0.450	2.250	Oct 2009	2.250	Nov 2010	0.000		2.250	Continuing	Continuing	Continuing
SAST Development/ Integration	C/CPFF	SEDNA VA	0.000	4.327	Jan 2010	2.595	Nov 2010	0.000		2.595	Continuing	Continuing	Continuing
SAST Development/ Integration	C/CPFF	UT/ARL TX	0.857	0.750	Dec 2009	0.750	Dec 2010	0.000		0.750	Continuing	Continuing	Continuing
Subtotal			37.909	37.433		28.666		0.000		28.666			
Remarks													
Test and Evaluation (\$ in Millions)													
				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
SSEMP ConductTest/ Data Evaluation	C/TBD	JHU/APL, MD C/CPFF	1.905	1.905	Dec 2009	1.905	Dec 2010	0.000		1.905	Continuing	Continuing	Continuing
SSEMP Conduct/Test/ Data Evaluation	WR	NAVSEA/ NEWPORT, RI WR	0.456	0.456	Nov 2009	0.456	Nov 2010	0.000		0.456	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy											DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 1319: <i>Research, Development, Test & Evaluation, Navy</i> BA 7: <i>Operational Systems Development</i>				R-1 ITEM NOMENCLATURE PE 0205620N: <i>Surface ASW Cmbt Sys Integr</i>				PROJECT 1916: <i>Surface ASW System Improvement</i>					
Test and Evaluation (\$ in Millions)													
				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
SSEMP Conduct/Test/ Data Evaluation	C/TBD	UT/ARL, TX C/CPFF	0.639	0.639	Dec 2009	0.639	Dec 2010	0.000		0.639	Continuing	Continuing	Continuing
SQQ-89 IV&V/SAT/ TEMP Assess./Update	WR	NAVSEA/ NEWPORT, RI WR	0.576	0.350	Nov 2009	0.350	Nov 2010	0.000		0.350	Continuing	Continuing	Continuing
SQQ-89 DT/OT/ Miscellaneous T&E	WR	VAR WR	0.775	0.350	Nov 2009	0.350	Nov 2010	0.000		0.350	Continuing	Continuing	Continuing
Subtotal			4.351	3.700		3.700		0.000		3.700			
Remarks													
Management Services (\$ in Millions)													
				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	C/CPAF	BAE Systems MD	1.088	0.397	Jan 2010	0.411	Nov 2010	0.000		0.411	0.000	1.896	Continuing
Program Office Travel	Allot	NAVSEA PEO IWS5 DC	0.329	0.100	Oct 2009	0.100	Oct 2010	0.000		0.100	0.000	0.529	Continuing
Subtotal			1.417	0.497		0.511		0.000		0.511	0.000	2.425	
Remarks													

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy							DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 1319: <i>Research, Development, Test & Evaluation, Navy</i> BA 7: <i>Operational Systems Development</i>				R-1 ITEM NOMENCLATURE PE 0205620N: <i>Surface ASW Cmbt Sys Integr</i>			PROJECT 1916: <i>Surface ASW System Improvement</i>		
Total Prior Years Cost FY 2010 FY 2011 Base FY 2011 OCO FY 2011 Total Cost To Complete Total Cost Target Value of Contract Project Cost Totals 43.677 41.630 32.877 0.000 32.877									
Remarks									

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

1319: Research, Development, Test & Evaluation, Navy
BA 7: Operational Systems Development

R-1 ITEM NOMENCLATURE

PE 0205620N: Surface ASW Cmbt Sys Integr

PROJECT

1916: Surface ASW System Improvement

Fiscal Year	2009				2010				2011				2012				2013				2014				2015	
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2
Development/Integration Milestones																										
AN/SQQ-89A(V)15 Software Sensor Segment Development/Integration/Certification - ACB-11																										
AN/SQQ-89A(V)15 Software Sensor Segment Development/Integration/Certification - ACB-13																										
AN/SQQ-89A(V)15 Software Sensor Segment Development/Integration/Certification - ACB-15																										
Surface ASW Synthetic Training (SAST) Development and Functional Segment/Spiral Integration into AN/SQQ-89A(V)15 - ACB-11/13/15																										
Test & Evaluation Milestones																										
AN/SQQ-89A(V)15 Developmental Test & Evaluation (DT&E) (Completed FY04), AN/SQQ-89A(V)15 Initial Operational Test & Evaluation (IOT&E) (Completed FY05, 'Operationally Effective' per COMOTEVFOR)																										
Surface Ship Enhanced Measurement Program (SSEMP)																										
Production/Delivery Milestones																										
AN/SQQ-89A(V)15 Production Software ACB-09/11/13/15 Delivery to System Prime/Integrator																										
AN/SQQ-89A(V)15 Backfit Fielding Plans Install Start Date Shown; Sequential System # Shown in () by Platform																										
DDG FLT IIA (DDG79-112) (Adjunct Upgrade)			(1)	(2)	(3)			(4,5)	(6)	(7,8,9,10)	(11,12)	(13)	(14)	(15,16,17)			(18)	(19,20)			(21,22)	(23,24)	(25)		(26)	(27,28,29)
DDG FLT I/II (DDG51-78) (Adjunct Upgrade)							(1)			(2)			(3)													
DDG FLT I/II (DDG51-78) (via DDG MOD Program)														(1)				(2)	(3)		(4)	(5)		(6)		
CG B/L III/IV (CG59-73) (via CG MOD Program)														(1,2)				(3,4)	(5)		(6,7)		(8)		(9,10,11)	

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: <i>Research, Development, Test & Evaluation, Navy</i> BA 7: <i>Operational Systems Development</i>	R-1 ITEM NOMENCLATURE PE 0205620N: <i>Surface ASW Cmbt Sys Integr</i>	PROJECT 1916: <i>Surface ASW System Improvement</i>	

Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
SQQ-89A(V)15 ACB-11 Dev./Step Eval./PRT/Integ./Cert.	1	2009	3	2010
SQQ-89A(V)15 ACB-11 SQT	4	2010	4	2010
SQQ-89A(V)15 ACB-13 Dev./Step Eval./PRT/Integ./Cert.	4	2010	4	2012
SQQ-89A(V)15 ACB-13 SQT	1	2013	1	2013
SQQ-89A(V)15 ACB-15 Dev./Step Eval./PRT/Integ./Cert.	2	2013	2	2015
SQQ-89A(V)15 ACB-15 SQT	3	2015	3	2015
SAST ACB-11 Functional Segment Integration	1	2009	3	2010
SAST ACB-11 SQT	4	2010	4	2010
SAST ACB-13 Functional Segment Integration	1	2011	4	2012
SAST ACB-13 SQT	1	2013	1	2013
SAST ACB-15 Functional Segment Integration	2	2013	2	2015
SAST ACB-15 SQT	3	2015	3	2015
Surface Ship Enhanced Measurement Program (SSEMP)	1	2009	4	2015
SQQ-89A(V)15 ACB-09 Prdtn. S/W Delivery to Integrator	1	2009	1	2009
SQQ-89A(V)15 ACB-11 Prdtn. S/W Delivery to Integrator	1	2011	1	2011
SQQ-89A(V)15 ACB-13 Prdtn. S/W Delivery to Integrator	2	2013	2	2013
SQQ-89A(V)15 ACB-15 Prdtn. S/W Delivery to Integrator	4	2015	4	2015
SQQ-89A(V)15 DDG51 Class FLT IIA Backfit Install (Adjunct Upgrade)	3	2009	2	2015

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy			DATE: February 2010	
APPROPRIATION/BUDGET ACTIVITY 1319: Research, Development, Test & Evaluation, Navy BA 7: Operational Systems Development		R-1 ITEM NOMENCLATURE PE 0205620N: Surface ASW Cmbt Sys Integr		PROJECT 1916: Surface ASW System Improvement
	Start		End	
Event	Quarter	Year	Quarter	Year
SQQ-89A(V)15 DDG51 Class FLT I/II Backfit Install (Adjunct Upgrade)	3	2010	2	2012
SQQ-89A(V)15 DDG51 Class FLT I/II Backfit Install (via DDG MOD Program)	3	2012	3	2015
SQQ-89A(V)15 CG47 Class B/L III/IV Backfit Install (via CG MOD Program)	2	2012	2	2015

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy								DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 1319: <i>Research, Development, Test & Evaluation, Navy</i> BA 7: <i>Operational Systems Development</i>				R-1 ITEM NOMENCLATURE PE 0205620N: <i>Surface ASW Cmbt Sys Integr</i>				PROJECT 9999: <i>Congressional Adds</i>			
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
9999: <i>Congressional Adds</i>	0.798	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	24.669
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification
Congressional Add.

B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010
Congressional Add: LONG RANGE SYNTHETIC APERTURE SONAR (SAS) FOR ASW	0.798	0.000
<i>FY 2009 Accomplishments:</i> FY 2009 Congressional Add: Initiate processor prototype system architecture, requirements modeling, and performance predictions for an ASW Synthetic Aperture Sonar system utilizing the current Navy sonar assets of an AN/SQS-53 hull mounted sonar and the MFTA. A Synthetic Aperture Sonar has the potential to significantly reduce false alarms and eliminate clutter from current US Navy ASW sonar systems. The creation of a synthetic longer array will provide acoustically derived images of contacts at extended ranges supporting the initial detection and rapid classification of ASW threats most notably irrespective of Doppler and in environments of high clutter. It does this through the synthetic formation of an aperture that provides narrow beams and constant resolution with range. This allows the formation of an image of the physical shape and aspect of the contact allowing the rejection of non ASW threat shapes as clutter while identifying high probability ASW threats.		
Congressional Adds Subtotals	0.798	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: <i>Research, Development, Test & Evaluation, Navy</i> BA 7: <i>Operational Systems Development</i>	R-1 ITEM NOMENCLATURE PE 0205620N: <i>Surface ASW Cmbt Sys Integr</i>	PROJECT 9999: <i>Congressional Adds</i>
C. Other Program Funding Summary (\$ in Millions) N/A		
D. Acquisition Strategy N/A		
E. Performance Metrics Congressional Add.		