EXHIBIT R-2, RDT&E Budget Item Justification							DATE: February 2003	
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-07**					R-1 ITEM NOMENCLATURE 0205620N Surface ASW Combat System Integration			
COST ($ in Millions)	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Total PE Cost	**27.789**	**35.106**	**12.179**	**11.187**	**5.332**	**10.802**	**11.063**	**11.266**
Q0896 / ASW Combat Systems Integration	**0.000**	**0.000**	**0.000**	**0.000**	**1.262**	**5.332**	**5.432**	**5.534**
Q1916 / Surface ASW System Improvements	**27.789**	**35.106**	**12.179**	**11.187**	**4.070**	**5.470**	**5.631**	**5.732**

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The objective of this Program Element (PE) is to significantly improve existing AN/SQQ-89(V) and Surface Ship Sonar System Capabilities. It will improve AN/SQQ-89(V) Measures of Performance (MOP) by enhancing detection, tracking, classification, data processing and display capabilities, and increasing acoustic sensor frequency bandwidth. This PE will take advantage of Acoustic Rapid COTS Insertion (ARCI) type intiatives and the AN/SQQ-89(V) open system architecture to develop and integrate the Multi-Function Towed Array (MFTA) with active sonar bistatics (Echo Tracker Classifier - ETC) and torpedo defense capabilities into the AN/SQQ-89(V) as a backfit program for CG47 (as part of the Cruiser Conversion program) and DDG51 class ships (AN/SQQ-89A(V)15). Via the Peer Review Process (PRP), the AN/SQQ-89A(V)15 system architecture will support technology refresh, maximize software portability, and support interoperability with multiple AEGIS baselines.

Defense Emergency Response Funds (DERF) Funds:

Not Applicable

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: **February 2003**	
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-07**	PROGRAM ELEMENT NUMBER AND NAME 0205620N Surface ASW Combat System Integration				PROJECT NUMBER AND NAME Q1916 Surface ASW System Improvements			
COST ($ in Millions)	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Project Cost	**27.789**	**35.106**	**12.179**	**11.187**	**4.070**	**5.470**	**5.631**	**5.732**
RDT&E Articles Qty		**1**						

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The Surface ASW System Improvements project will support essential performance enhancements on AN/SQQ-89(V) and Surface Ship Sonar Systems. This project will develop and refine active classification and display upgrades to support implementation in both the AN/SQQ-89(V) hull subsystem and the MFTA. This project will integrate the MFTA with active sonar bistatics (ETC) and torpedo defense capabilities into the AN/SQQ-89(V) as a backfit program for CG47 (as part of the Cruiser Conversion program) and DDG51 class ships (AN/SQQ-89A(V)15). This project will contract for the delivery of the AN/SQQ-89A(V)15 Engineering and Development Model (EDM) in FY 2003, with installation planned on a CG47 class ship in FY 2004, and developmental and operational tests scheduled in FY 2004/2005 respectively. Via the PRP and ARCI, evolutionary programs will be incorporated into the AN/SQQ-89A(V)15 system architecture to take advantage of the latest advances in technology, support technology refresh, maximize software portability, and support interoperability with multiple AEGIS baselines. This Project will also develop the AN/SQQ-89(V) design and interface with the Light Airborne Multi-Purpose (LAMPS) Mk III Blk II system.

Congressionally added funds in FY03 ($11.6M) will continue AN/SQQ-89(V) Surface Undersea Warfare Combat System sensor and signal processing improvements begun under SBIR N97-090. These funds will be used to improve war fighting capabilities on board Flight I and II DDG51 class ships by modernizing the AN/SQQ-89(V) Surface Undersea Warfare Combat System through COTS technical refresh initiatives not included in the Program of Record. Funding will be used to develop and build a system for land based testing as well as a system for roll-on/roll-off at-sea demonstration and testing and evaluation.

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EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2003**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-07	0205620N Surface ASW Combat System Integration	Q1916 Surface ASW System Improvements

B. Accomplishments/Planned Program

	FY 02	FY 03	FY 04	FY 05
Enhance AN/SQQ-89A(V)15 System Architecture	10.351	4.736	5.402	7.187
RDT&E Articles Quantity				

Continue enhancement of AN/SQQ-89A(V)15 system architecture via the incorporation of evolutionary programs through the PRP, development of a common superset software baseline, and ARCI type intiatives that take advantage of the latest advances in technology to support technology refresh, maximize software portability, and modify external interfaces to support interoperability with multiple AEGIS baselines. Also includes the development of improved torpedo detection algorithms to be incorporated into the Torpedo Recognition and Alertment Functional Segment (TRAFS) on AN/SQQ-89(V) platforms.

	FY 02	FY 03	FY 04	FY 05
MFTA, ETC and Torpedo DCL Integration	14.179			
RDT&E Articles Quantity				

Completed integration of MFTA, active sonar bistatic processing (ETC) and torpedo Detection, Classification and Localization (DCL) software into the AN/SQQ-89A(V)15 common superset software baseline.

	FY 02	FY 03	FY 04	FY 05
MFTA Sea Tests	0.275	0.335		
RDT&E Articles Quantity				

Coordinate and conduct test of MFTA performance at sea. Provide report and analysis of findings.

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EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2003**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-07	0205620N Surface ASW Combat System Integration	Q1916 Surface ASW System Improvements

B. Accomplishments/Planned Program (Cont.)

	FY 02	FY 03	FY 04	FY 05
AN/SQQ-89A(V)15 EDM Delivery and Installation		17.123	1.777	
RDT&E Articles Quantity		1		

FY03: Contract for delivery of AN/SQQ-89A(V)15 EDM, provide associated integration and production support, and coordinate installation efforts.
FY04: Contract for installation of AN/SQQ-89A(V)15 EDM on board CG47 class ship, provide associated Installation Checkout (INCO) support.

	FY 02	FY 03	FY 04	FY 05
LAMPS Mk III Blk II CAUSS & Ku Band Integration	0.919	0.500	1.000	1.000
RDT&E Articles Quantity				

Continue the integration of the LAMPS Mk III Blk II Common Airborne Undersea Sensor Software (CAUSS) and Ku Band on-board AN/SQQ-89(V) platforms, including the AN/SQQ-89A(V)15.

	FY 02	FY 03	FY 04	FY 05
AN/SQQ-89(V) Test & Evaluation Program	0.700	0.812	0.686	0.590
RDT&E Articles Quantity				

Provide AN/SQQ-89(V) test and evaluation planning support, update Test & Evaluation Master Plan (TEMP) to reflect AN/SQQ-89A(V)15 test program, coordinate and conduct roll-on roll-off test of the Torpedo Alertment Upgrade (TAU) version 5.0 on a DDG51 class ship, provide performance data and environmental analysis, Independent Verification & Validation (IV&V), and modeling and simulation using MOP and measures of effectiveness (MOE) methods.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2003**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-07	0205620N Surface ASW Combat System Integration	Q1916 Surface ASW System Improvements

B. Accomplishments/Planned Program (Cont.)

	FY 02	FY 03	FY 04	FY 05
AN/SQQ-89A(V)15 EDM DT/OT			3.314	2.410
RDT&E Articles Quantity				

FY04: Coordinate and conduct developmental test DT-IIIAQ of the AN/SQQ-89A(V)15 EDM and coordinate plan for FY05 operational test OT-IIIK.
FY05: Coordinate and conduct operational test OT-IIIK of the AN/SQQ-89A(V)15 EDM.

	FY 02	FY 03	FY 04	FY 05
EA Algorithm Transition into AN/SQQ-89A(V)15	1.365			
RDT&E Articles Quantity				

Transition Environmentally Adaptive (EA) algorithms and active sonar parameter control into the AN/SQQ-89A(V)15.

	FY 02	FY 03	FY 04	FY 05
AN/SQQ-89(V) Sensor/Signal Processing Improvements		11.600		
RDT&E Articles Quantity				

Congressionally added funds in FY03 will continue AN/SQQ-89(V) Surface Undersea Warfare Combat System sensor and signal processing improvements begun under SBIR N97-090. These funds will be used to improve war fighting capabilities on board Flight I and II DDG51 class ships by modernizing the AN/SQQ-89(V) Surface Undersea Warfare Combat System through COTS technical refresh initiatives not included in the Program of Record. Funding will be used to develop and build a system for land based testing as well as a system for roll-on/roll-off at-sea demonstration and testing and evaluation.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2003**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-07	0205620N Surface ASW Combat System Integration	Q1916 Surface ASW System Improvements

C. PROGRAM CHANGE SUMMARY:

	FY 2002	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY03 Pres Controls) :	28.119	24.424	16.609	14.337
Current BES/President's Budget (FY04 President Controls)	27.789	35.106	12.179	11.187
Total Adjustments	-0.330	10.682	-4.430	-3.150
Summary of Adjustments				
Congressional program reductions				
Congressional undistributed reductions	-0.385	-0.462		
Congressional rescissions				
SBIR/STTR Transfer	-0.642			
Economic Assumptions/Rate Adjustments			-0.258	-0.216
Reprogrammings	0.697	-0.456	-4.172	-2.934
Congressional increases *		11.600		
Subtotal	-0.330	10.682	-4.430	-3.150

* Congressionally added funds in FY03 will continue AN/SQQ-89(V) Surface Undersea Warfare Combat System sensor and signal processing improvements begun under SBIR N97-090.

Schedule:

Not Applicable

Technical:

Not Applicable

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2003**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-07	0205620N Surface ASW Combat System Integration	Q1916 Surface ASW System Improvements

D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Complete	Total Cost
2136 AN/SQQ-89 Surf ASW Combat Sys (OPN)	16.2	13.9	0.0	0.0	0.0	0.0	0.0	32.8	Continuing	Continuing

2020 Cruiser Conversion (SCN)
2122 DDG-51 (SCN)

E. ACQUISITION STRATEGY:

- Prime Contractor award 2Q FY 2002 (Lockheed Martin, Syracuse, NY)
- Complete AN/SQQ-89A(V)15 EDM 1Q FY 2004, install on-board CG 47 class ship in FY 2004, conduct developmental test in FY 2004 and operational test in FY 2005. Via PRP, incorporate evolutionary technologies into AN/SQQ-89(V) platforms at scheduled intervals.

F. MAJOR PERFORMERS:

- Advanced Acoustic Concepts (AAC), NY - SBIR Phase III contract for common acoustic procesor, prime contractor for FY03 Congressional Add to continue AN/SQQ-89(V) sensor and signal processing improvements begun under SBIR N97-090
- Applied Hydro-Acoustics Research (AHA), MD - SBIR Phase III contract for common acoustic processor and beamformer processing for MFTA
- Digital System Resources (DSR), VA - SBIR Phase III contract for common acoustic processor
- Johns Hopkins University Applied Physics Laboratory (JHU/APL), MD - Design, development and integration of MFTA, Torpedo Detection Classification and Localization (TDCL) improvements, and emerging active sonar technologies into the AN/SQQ-89(V)
- Lockheed Martin, NY - Prime AN/SQQ-89(V) Production and Design Agent. This contract was competitively awarded in May 2002
- Naval Sea Systems Command, Newport, RI - AN/SQQ-89(V) Technical Design Agent support
- Naval Sea Systems Command, Dahlgren, VA - AN/SQQ-89(V) Technical Design Agent support

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: **February 2003**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-07**		PROGRAM ELEMENT 0205620N Surface ASW Combat System Integration			PROJECT NUMBER AND NAME Q1916 Surface ASW System Improvements							
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary H/W & S/W Development	C/CPFF	AAC, NY	2.222	8.945	12/02					0.000	11.167	
Primary H/W & S/W Development	C/CPFF	AHA, MD	3.666	1.870	11/02					0.000	5.536	
Primary H/W & S/W Development	C/CPFF	DSR, VA	3.644	2.342	11/02					0.000	5.986	
Primary H/W & S/W Development	C/CPFF	JHU/APL, MD	6.669	1.172	10/02	0.784	12/03			0.000	8.625	
Primary H/W & S/W Development	C/CPAF	LOCKHEED MARTIN, NY	36.617	10.837	11/02	4.200	12/03	5.800	12/04	Continuing	Continuing	
Primary H/W & S/W Development	WR	NAVSEA/DAHLGREN, VA	7.776	1.643	10/02	0.648	11/03	0.650	11/04	Continuing	Continuing	
Primary H/W & S/W Development	WR	NAVSEA/NEWPORT, RI	26.829	1.423	10/02	1.552	11/03	0.927	11/04	Continuing	Continuing	
Primary H/W & S/W Development	Var.	Var.	28.221	5.341	Var.	0.687	Var.	0.500	Var.	Continuing	Continuing	
Subtotal Product Development			115.644	33.573		7.871		7.877		Continuing	Continuing	

Remarks:
Budgeted for award fees ($M): 0.208 in FY03, 0.526 in FY04, 0.573 in FY05 (Lockheed Martin, NY). Lockheed Martin's performance has been excellent, earning close to 100% of possible award fee for the most recent award fee periods.

Engineering & Technincal Svcs (ETS)	Var.	Var.	0.900							0.000	0.900	
Studies, Analyses & Evaluation (SAE)	Var.	Var.	1.500							0.000	1.500	
Subtotal Support			2.400	0.000		0.000		0.000		0.000	2.400	

Remarks:

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)								DATE: **February 2003**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-07**		PROGRAM ELEMENT 0205620N Surface ASW Combat System Integration				PROJECT NUMBER AND NAME Q1916 Surface ASW System Improvements						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental & Operational T&E	Var.	Var.	4.164			3.312	Var.	2.410	Var.	Continuing	Continuing	
Miscellaneous T&E	Var.	Var.	3.422	0.812	Var.	0.686	Var.	0.590	Var.	Continuing	Continuing	
Subtotal T&E			7.586	0.812		3.998		3.000		Continuing	Continuing	
Remarks:												
Program Management Support	Var.	Var.	6.436	0.571	Var.	0.160	Var.	0.160	Var.	Continuing	Continuing	
Travel	Var.	Var.	1.154	0.150	Var.	0.150	Var.	0.150	Var.	Continuing	Continuing	
			7.590	0.721		0.310		0.310		Continuing	Continuing	
Remarks:												
Total Cost			133.220	35.106		12.179		11.187		Continuing	Continuing	
Remarks:												

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CLASSIFICATION:

EXHIBIT R4, Schedule Profile — DATE: **February 2003**

APPROPRIATION/BUDGET ACTIVITY: **RDT&E, N / BA-07**

PROGRAM ELEMENT NUMBER AND NAME: 0205620N Surface ASW Combat System Integration

PROJECT NUMBER AND NAME: Q1916 Surface ASW System Improvements

Fiscal Year	2002				2003				2004				2005				2006				2007				2008				2009			
	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	3	4	1	2	3	4
Acquisition/Contract Milestones/Reviews	Contract Award		CRR	SIRR	IBR	SIBR	SIDR									IOC					Contract Award											
AN/SQQ-89A(V)15 Prototype Phase																																
AN/SQQ-89A(V)15 Functional System Development Government Acceptance Test (GAT)										SQT																						
EDM AN/SQQ-89A(V)15 Delivery				Material Ordered		Assembly	Test			CG																						
AN/SQQ-89A(V)15 Software Delivery to System Integrator				Initial Build 0		Final Build 0															PRP Drop Build 1								PRP Drop Build 2			
Test & Evaluation Milestones		Active/Passive Data Collection (FCO-Ops)					DESRON 15 SHAREM		TRR		DT-IIAQ			OT-IIIK																		
Development Test																																
Operational Test																																
Production Milestones		Production Contract Award										PRR																				
Deliveries																CG (1)				CG (2,3)				CG (4,5)				CG (6,7)				CG (8,9)

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CLASSIFICATION:

Exhibit R-4a, Schedule Detail					DATE: **February 2003**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-07**	PROGRAM ELEMENT 0205620N Surface ASW Combat System Integration				PROJECT NUMBER AND NAME Q1916 Surface ASW System Improvements			
Schedule Profile	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Prototype Phase	1Q-3Q							
Active/Passive Data Collection (PCO-Ops)	2Q							
Contract Award to Lockheed Martin	3Q							
Contracts Requirements Review (CRR)	3Q							
Initial Software Delivery to System Integrator	4Q							
System Integration Requirements Review (SIRR)	4Q							
Government Acceptance Test (GAT)	4Q	1Q-2Q						
Integrated Baseline Review (IBR)		1Q						
EDM Material Ordered		1Q						
System Integration Baseline Review (SIBR)		2Q						
Final Software Delivery to System Integrator		2Q						
System Integration Design Review (SIDR)		3Q						
EDM Assembly Begins		3Q						
DESRON 15 SHAREM		3Q						
EDM Test		4Q	1Q					
Test Readiness Review (TRR)			1Q					
System Qualification Test (SQT)			2Q					
EDM Delivery			2Q					
Developmental Test DT-IIIAQ			3Q-4Q					
Preproduction Readiness Review (PRR)			4Q					
Operational Test (OT-IIIK)				2Q				
Initial Operational Capability (IOC)				4Q				
Production Delivery to CG47 Class Ship (1)				4Q				
Production Delivery to CG47 Class Ships (2,3)					4Q			
Peer Review Process S/W / H/W Drop - Build 1						1Q		
Contract Award						2Q		
Production Delivery to CG47 Class Ships (4,5)						4Q		
Production Delivery to CG47 Class Ships (6,7)							4Q	
Peer Review Process S/W / H/W Drop - Build 2								1Q
Production Delivery to CG47 Class Ships (8,9)								4Q

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