

EXHIBIT R-2, RDT&E Budget Item Justification							DATE:	
APPROPRIATION/BUDGET ACTIVITY							R-1 ITEM NOMENCLATURE	
RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-5							0604261N, ACOUSTIC SEARCH SENSORS	
COST (\$ in Millions)								
	FY 2008	FY 2009	FY 2010					
Total PE Cost	18.742	39.345	56.369					
0480 ASW SENSORS & PROC	17.957	39.345	41.101					
3224 HIGH ALTITUDE ASW FOR P-8			15.268					
9999 CONGRESSIONAL ADDS	.785							

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

0480. The ASW Sensors and Processing project provides the tools and methods necessary to maintain naval superiority by preventing hostile submarines from disrupting the US Navy's ability to control the sea lines of communication and carry out their missions. This project encompasses the System Development and Demonstration (SDD) phase and the follow on increment of sensor systems to improve the mission effectiveness of airborne Anti-Submarine Warfare (ASW) platforms in cueing, search, localization, and track. Smaller and quieter threat submarines drive the requirement for continued advancement in ASW sensor capabilities for both blue water and littoral environments. The littoral regions of the world create an additional ASW challenge to overcome the increase in background clutter caused by the shallow water depth, high volume of shipping, and commercial radio frequency interference. Project 0480 provides funding to the Extended Echo Ranging (EER) family of multi-static active ASW systems for the engineering development of solutions that detect, classify, and track threat submarines. Efforts funded during the period identified are for the Advanced EER (AEER) program which started in FY08, including the development of an active coherent (electronic) source sonobuoy, ECP modifications to the existing Air Deployable Active Receiver (ADAR) sonobuoy, development, integration, and test of aircraft avionics software, and upgrades to the multi-static mission planning tool, the Tactical Operational Readiness Trainer (TORT) and the Tactical Ground Replay System. AEER provides a search and localization capability in all water environments and could eliminate current impulsive source safety, training, and Rules of Engagement restrictions. Project 0480 also provides funding for the Advanced Processing Builds (APB) which provide signal processing improvements to achieve increased target detection and classification capabilities. APB also includes efforts for providing common software and hardware solutions across all ASW platforms. Also included in this project is funding to conduct testing for safe carriage and release for P-3 flight certification of the Acoustic to RF (A2RF) Air variant communications buoy in support of the PMW-770 Communications at Speed and Depth (CSD) program for underwater communications with a submerged submarine.

3224. The objective of this project is for the engineering development and integration of sensor system improvements along with expanded environmental sensing and mission planning tools enabling ASW aircraft greater operational flexibility and effectiveness at high altitudes. Efforts being funded during the period identified for system development and integration are GPS and Digital Uplink modifications to current sonobuoys and a tactical atmospheric sensor (dropsonde) along with additions to current mission planning tools (MPTs). The GPS in Buoy modification will provide precise sonobuoy location regardless of aircraft altitude/location to enhance tracking, fixing and targeting. The Digital Uplink modification will improve sonobuoy communications performance at altitude in high Radio Frequency Interference (RFI) littoral environments, increase channel availability, and provide NATO compatibility. The tactical dropsonde development will provide the capability to conduct real time measurement of in situ atmospheric data (wind, speed, direction, temperature, humidity, etc.) that will be linked real time to the aircraft. The modified MPT software will use this in situ data to provide more accurate tactical decision aids to the operators to optimize high altitude sensor and weapon employment. The lead platform for integration is the P-8A.

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EXHIBIT R-2, RDT&E Budget Item Justification		DATE: May 2009
APPROPRIATION/BUDGET ACTIVITY RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-5	R-1 ITEM NOMENCLATURE 0604261N, ACOUSTIC SEARCH SENSORS	

B. PROGRAM CHANGE SUMMARY

Funding:	FY 2008	FY 2009	FY 2010
Previous President's Budget	18.658	45.790	39.042
Current BES Budget	18.742	39.345	56.369
Total Adjustments	0.084	-6.445	17.327

Summary of Adjustments

Congressional Recissions			
Congressional Adjustments		-6.337	
SBIR/STTR/FTT Assessments	0.121		
Program Adjustments	-0.037		17.340
Rate/Misc Adjustments		-0.108	-0.013
Subtotal	0.084	-6.445	17.327

Schedule: 0480 - Multi Static Active (Impulsive). For clarification, renamed MSA Integration Contract to MSA Increment 1 Fleet Release and moved from 1Q/08 to 3Q/08 due to delays experienced during DT and OT. Renamed APB (1), APB (2), APB (3) and APB (4) Integration Contract to Fleet Release. Moved APB (1) SQT from 2Q/08 to 4Q/08, APB (1) S/W Release from 4Q/08 to 2Q/09, and APB (1) Fleet Release from 1Q/09 to 3Q/09 due to delays experienced during MSA DT & OT. Due to a \$6.0M reduction in Software Development Phase II for Program Growth (Issue 74056), the APB (1) software was tested and released as scheduled, however, it did not include software development, integration, testing, and training for MSA (Impulsive) increment 2 as planned.

Multi-Static Active (Coherent). Moved Commence S/W and H/W Integration Flt Test (Inc 1) from 4Q/10 to 3Q/10 and removed MS B (Inc 2) to match the approved Acquisition Strategy Review (ASR). In the note section of R4, changed Block builds to Incremental builds. Changed Block 1 to Increment 1 and Block 2 to Increment 2.

Communications at Speed and Depth (CSD) - A2RF - Air. Schedule added to reflect P-3 participation in CSD Increment 1 program (PMW-770) DT/OT.

3224. Schedule added for Sonobuoy GPS and Digital Uplink Mods and Dropsonde and Mission Planning Tools (MPT) to reflect development and

Technical:
0480 - N/A
3224 - N/A

EXHIBIT R-2a, RDT&E Project Justification							DATE: May 2009		
APPROPRIATION/BUDGET ACTIVITY RDT&E,N / BA-5			PROGRAM ELEMENT NUMBER AND NAME 0604261N, ACOUSTIC SEARCH SENSORS			PROJECT NUMBER AND NAME 0480, ASW SENSORS & PROC			
COST (\$ in Millions)			FY 2008	FY 2009	FY 2010				
0480 ASW SENSORS & PROC			17.957	39.345	41.101				
RDT&E Articles Qty					1530				

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The ASW Sensors and Processing project provides the tools and methods necessary to maintain naval superiority by preventing hostile submarines from disrupting the US Navy's ability to control the sea lines of communication and carry out their missions. This project encompasses the System Development and Demonstration (SDD) phase and the follow on increment of sensor systems to improve the mission effectiveness of airborne Anti-Submarine Warfare (ASW) platforms in cueing, search, localization, and track. Smaller and quieter threat submarines drive the requirement for continued advancement in ASW sensor capabilities for both blue water and littoral environments. The littoral regions of the world create an additional ASW challenge to overcome the increase in background clutter caused by the shallow water depth, high volume of shipping, and commercial radio frequency interference. Project 0480 provides funding to the Extended Echo Ranging (EER) family of multi-static active ASW systems for the engineering development of solutions that detect, classify, and track threat submarines. Efforts funded during the period identified are for the Advanced EER (AEER) program which started in FY08, including the development of an active coherent (electronic) source sonobuoy, ECP modifications to the existing Air Deployable Active Receiver (ADAR) sonobuoy, development, integration, and test of aircraft avionics software, and upgrades to the multi-static mission planning tool, the Tactical Operational Readiness Trainer (TORT) and the Tactical Ground Replay System. AEER provides a search and localization capability in all water environments and could eliminate current impulsive source safety, training, and Rules of Engagement restrictions. Project 0480 also provides funding for the Advanced Processing Builds (APB) which provide signal processing improvements to achieve increased target detection and classification capabilities. APB also includes efforts for providing common software and hardware solutions across all ASW platforms. The 1530 sonobuoy test articles in FY10 will support software and hardware integration flight tests and Technical Evaluation (TECHEVAL)/Operational Evaluation (OPEVAL) for AEER Phase 1 and Phase 2 respectively. Also included in this project is funding to conduct testing for safe carriage and release for P-3 flight certification of the Acoustic to RF (A2RF) Air variant communications buoy in support of the PMW-770 Communications at Speed and Death (CSD) program for underwater

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EXHIBIT R-2a, RDT&E Project Justification		DATE: May 2009
APPROPRIATION/BUDGET ACTIVITY RDT&E,N / BA-5	PROGRAM ELEMENT NUMBER AND NAME 0604261N, ACOUSTIC SEARCH SENSORS	PROJECT NUMBER AND NAME 0480, ASW SENSORS & PROC

B. ACCOMPLISHMENTS / PLANNED PROGRAM:

Completed MSA DT & OT / Deliver IEER (2)	FY 2008	FY 2009	FY 2010
Accomplishments / Effort / Sub-total Cost	7.957	2.060	9.049
RDT&E Articles Qty			

APB funds for software development, integration, and test for Multi-Static ASW (MSA) sensor systems. Provides P-3 platform integration of multi-static technology improvements allowing increased weapon system efficiency and decreased fleet operator workload in the littoral ASW mission. Due to a \$6.0M reduction in Software Development Phase II for Program Growth (Issue 74056), the APB (1) software was tested and released as scheduled, however, it did not include software development, integration, test, and training for MSA (Impulsive) increment 2 as planned.

Commence AEER / Deliver AEER Phase 1	FY 2008	FY 2009	FY 2010
Accomplishments / Effort / Sub-total Cost	10.000	37.285	29.052
RDT&E Articles Qty			1500

Continue to develop a coherent source that will satisfy the search and localization requirement in the harsh, shallow water littorals.

Comms at Speed and Depth/DT/OT Support	FY 2008	FY 2009	FY 2010
Accomplishments / Effort / Sub-total Cost			3.000
RDT&E Articles Qty			30

A2RF-Air Variant test articles, and support during DT/OT. P-3 participation in the CSD Increment 1 Program (PMW-770) for flight hour cost,

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EXHIBIT R-2a, RDT&E Project Justification		DATE: May 2009
APPROPRIATION/BUDGET ACTIVITY RDT&E,N / BA-5	PROGRAM ELEMENT NUMBER AND NAME 0604261N, ACOUSTIC SEARCH SENSORS	PROJECT NUMBER AND NAME 0480, ASW SENSORS & PROC

C. OTHER PROGRAM FUNDING SUMMARY: FY 2008 FY 2009 FY 2010

(U) OPN (404800) AN/SSQ-125

D. ACQUISITION STRATEGY:

The development and integration of Multi-Static ASW (MSA) using coherent source technology into the P-3 Aircraft. Various alternatives of MSA implementation are also being investigated that could require Full and Open competition.

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Exhibit R-3 Cost Analysis (page 1)										DATE: May 2009			
APPROPRIATION/BUDGET ACTIVITY RDT&E,N / BA-5			PROGRAM ELEMENT 0604261N, ACOUSTIC SEARCH SENSORS				PROJECT NUMBER AND NAME 0480, ASW SENSORS & PROC						
Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date							
Cost Categories													
PRODUCT DEVELOPMENT													
Primary Hdw Development	VARIOUS	VARIOUS	4.500	7.500	10/08	4.900	10/09						
SUBTOTAL PRODUCT DEVELOPMENT			4.500	7.500		4.900							

Remarks:

SUPPORT												
Software Development (Phase II)	WX	NAWCAD, PATUXENT RIVER, MD	8.795	1.473	10/08	3.315	10/09					
Software Development (Phase II)	VARIOUS	VARIOUS		4.055	10/08	6.302	10/09					
Studies & Analyses	WX	NAWCAD, PATUXENT RIVER, MD	4.931	4.524	10/08	3.919	10/09					
Technical Data	WX	NAWCAD, PATUXENT RIVER, MD	8.229	.500	10/08	1.000	10/09					
SUBTOTAL SUPPORT			21.955	10.552		14.536						

Remarks:

TEST & EVALUATION												
Dev Test & Eval		NAWCAD, PATUXENT RIVER, MD	6.100	3.500	11/08	5.000	11/09					
SUBTOTAL TEST & EVALUATION			6.100	3.500		5.000						

Remarks:

MANAGEMENT												
Contractor Eng Sup (APB)	VARIOUS	VARIOUS	13.809	6.290	11/08	4.908	11/09					
ENG & TECH SUPPT SRVC (NON-FFRDC)	VARIOUS	VARIOUS	42.873	1.285	11/08	1.074	11/09					
Government Eng Sup	WX	NAWCAD, PATUXENT RIVER, MD	69.610	10.118	10/08	10.583	10/09					
MGT & PROF SUPPT SRVC (FFRDC)	VARIOUS	VARIOUS	8.864	.100	11/08	.100	11/09					
SUBTOTAL MANAGEMENT			135.156	17.793		16.665						

Remarks:

Total Cost			167.711	39.345		41.101						
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Remarks:

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CLASSIFICATION:

EXHIBIT R4, Schedule Profile Multi-Static Active (Impulsive)												DATE: May 2009																								
APPROPRIATION/BUDGET ACTIVITY RDT&E,N / BA-5						PROGRAM ELEMENT NUMBER AND NAME 0604261N, ACOUSTIC SEARCH SENSORS						PROJECT NUMBER AND NAME 0480, ASW SENSORS & PROC																								
Fiscal Year	FY 2008				FY 2009				FY 2010																											
	1	2	3	4	1	2	3	4	1	2	3	4																								
Acquisition Milestones	MSA Increment 1 Fleet Release				APB (1) Fleet Release																															
Prototype Phase																																				
System Development																																				
EDM Delivery																																				
Software Development/Integration					APB (1) S/W release				APB (2) S/W RELEASE																											
Test & Evaluation Milestones	APB (1) SQT								APB (2) SQT																											
Development Test																																				
Operational Test																																				
Production Milestones																																				
Deliveries																																				

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EXHIBIT R4, Schedule Profile												DATE:												
Multi-Static Active (Coherent)												May 2009												
APPROPRIATION/BUDGET ACTIVITY						PROGRAM ELEMENT NUMBER AND NAME						PROJECT NUMBER AND NAME												
RDT&E,N / BA-5						0604261N, ACOUSTIC SEARCH SENSORS						0480, ASW SENSORS & PROC												
Fiscal Year	FY 2008				FY 2009				FY 2010															
	1	2	3	4	1	2	3	4	1	2	3	4												
Acquisition Milestones	Pre MS B Prep				MS B								MS C											
					△								△											
System Development Localization									CDR (Inc 1)															
									△															
EDM Delivery												H/W EDM (Inc 1)												
												△												
Software Integration																								
Test & Evaluation Milestones																								
Development Test																								
Operational Test																								
Production Milestones																								

Note: AEER, is a spiral upgrade development effort that commenced in 1Q/08 consisting of two incremental builds. Increment 1 is to develop and produce a Coherent Source buoy to provide a multi-static active localization system capability. Increment 2 will increase the source level and provide a large area search capability.

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EXHIBIT R4, Schedule Profile Communications at Speed and Depth (CSD) - A2RF - Air											DATE: May 2009		
APPROPRIATION/BUDGET ACTIVITY RDT&E,N / BA-5						PROGRAM ELEMENT NUMBER AND NAME 0604261N, ACOUSTIC SEARCH SENSORS					PROJECT NUMBER AND NAME 0480, ASW SENSORS & PROC		
Fiscal Year	FY 2008				FY 2009				FY 2010				
	1	2	3	4	1	2	3	4	1	2	3	4	
Test & Evaluation A2RF - Air										DT △	OA △		

Note: A2RF-Air Variant test articles, and support during DT/OT. P-3 participation in the CSD Increment 1 Program (PMW-770) for flight hour cost,

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EXHIBIT R-2a, RDT&E Project Justification							DATE: May 2009		
APPROPRIATION/BUDGET ACTIVITY RDT&E,N / BA-5			PROGRAM ELEMENT NUMBER AND NAME 0604261N, ACOUSTIC SEARCH SENSORS			PROJECT NUMBER AND NAME 3224, HIGH ALTITUDE ASW FOR P-8			
COST (\$ in Millions)			FY 2008	FY 2009	FY 2010				
3224 HIGH ALTITUDE ASW FOR P-8					15.268				
RDT&E Articles Qty									

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The objective of this project is for the engineering development and integration of sensor system improvements along with expanded environmental sensing and mission planning tools enabling ASW aircraft greater operational flexibility and effectiveness at high altitudes. Efforts being funded during the period identified for system development and integration are GPS and Digital Uplink modifications to current sonobuoys and a tactical atmospheric sensor (dropsonde) along with additions to current mission planning tools (MPTs). The GPS in Buoy modification will provide precise sonobuoy location regardless of aircraft altitude/location to enhance tracking, fixing, and targeting. The Digital Uplink modification will improve sonobuoy communications performance at altitude in high Radio Frequency Interference (RFI) littoral environments, increase channel availability, and provide NATO compatibility. The tactical dropsonde development will provide the capability to conduct real time measurement of in situ atmospheric data (wind, speed, direction, temperature, humidity, etc) that will be linked real time to the aircraft. The modified MPT software will use this in situ data to provide more accurate tactical decision aids to the operators to optimize high altitude sensor and weapons employment. The lead platform for integration is the P-8A.

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EXHIBIT R-2a, RDT&E Project Justification		DATE: May 2009
APPROPRIATION/BUDGET ACTIVITY RDT&E,N / BA-5	PROGRAM ELEMENT NUMBER AND NAME 0604261N, ACOUSTIC SEARCH SENSORS	PROJECT NUMBER AND NAME 3224, HIGH ALTITUDE ASW FOR P-8

B. ACCOMPLISHMENTS / PLANNED PROGRAM:

Provide precision delivery of sonobuoys	FY 2008	FY 2009	FY 2010
Accomplishments / Effort / Sub-total Cost			15.268
RDT&E Articles Qty			

This effort supports development of modifications to current production sonobuoys, development of a tactical dropsonde capability, and development of mission planning tools software to enhance the P-8A high altitude ASW capability.

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EXHIBIT R-2a, RDT&E Project Justification		DATE: May 2009
APPROPRIATION/BUDGET ACTIVITY RDT&E,N / BA-5	PROGRAM ELEMENT NUMBER AND NAME 0604261N, ACOUSTIC SEARCH SENSORS	PROJECT NUMBER AND NAME 3224, HIGH ALTITUDE ASW FOR P-8

C. OTHER PROGRAM FUNDING SUMMARY:

Not Applicable.

D. ACQUISITION STRATEGY:

Various sole source and/or competitive contracts to sonobuoy vendors to develop modifications to existing sonobuoys for incorporation of GPS and Digital Uplink capabilities. Various sole source and/or competitive contracts to develop tactical dropsonde expendable hardware, software, and link to aircraft. P-8A prime integrator will perform aircraft software integration to implement new sonobuoy capabilities and real time use of dropsonde environmental information.

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Exhibit R-3 Cost Analysis (page 1)							DATE: May 2009				
APPROPRIATION/BUDGET ACTIVITY		PROGRAM ELEMENT				PROJECT NUMBER AND NAME					
RDT&E,N / BA-5		0604261N, ACOUSTIC SEARCH SENSORS				3224, HIGH ALTITUDE ASW FOR P-8					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date				
PRODUCT DEVELOPMENT											
Primary Hdw Development	VARIOUS	VARIOUS				9.035	Various				
SUBTOTAL PRODUCT DEVELOPMENT						9.035					

Remarks:

SUPPORT											
Program Documentation	VARIOUS	VARIOUS				.295	Various				
Studies and Analysis	VARIOUS	VARIOUS				1.150	Various				
A/C Software Integration	VARIOUS	VARIOUS				3.000	Various				
Tech Data	WX	NAWCAD, PATUXENT RIVER, MD									
SUBTOTAL SUPPORT						4.445					

Remarks:

TEST & EVALUATION											
Dev Test & Eval	VARIOUS	VARIOUS				.100	Various				
SUBTOTAL TEST & EVALUATION						.100					

Remarks:

MANAGEMENT											
Contractor Eng Sup	VARIOUS	VARIOUS				.500	10/09				
ENG & TECH SRVC (NON-FFRDC)	VARIOUS	VARIOUS				.140	10/09				
Government Eng Sup	WX	NAWCAD, PATUXENT RIVER, MD				.818	10/09				
Travel	TO	TBD				.230	10/09				
SUBTOTAL MANAGEMENT						1.688					

Remarks:

Total Cost						15.268					
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Remarks:

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CLASSIFICATION:

EXHIBIT R4, Schedule Profile HAASW (Sonobuoy GPS and Digital Uplink Mods)												DATE: May 2009			
APPROPRIATION/BUDGET ACTIVITY RDT&E,N / BA-5								PROGRAM ELEMENT NUMBER AND NAME 0604261N, ACOUSTIC SEARCH SENSORS				PROJECT NUMBER AND NAME 3224, HIGH ALTITUDE ASW FOR P-8			
Fiscal Year	FY 2008				FY 2009				FY 2010						
	1	2	3	4	1	2	3	4	1	2	3	4			
Acquisition Milestones Sonobuoy GPS/Digital Uplink Mods													△ MS-B		
System Development Sonobuoy GPS/Digital Uplink Mods													H/W Sys Dev △ GPS/Uplink Sonobuoy Modification Contract		
Test Article Delivery Sonobuoy GPS/Digital Uplink Mods															
Software Development/Integration Sonobuoy GPS/Digital Uplink Mods										A/C S/W Dev/Int			△		
Test & Evaluation Sonobuoy GPS/Digital Uplink Mods													GPS/Uplink Sonobuoy Modification Contract		
Production Sonobuoy GPS/Digital Uplink Mods															
Deliveries Sonobuoy GPS/Digital Uplink Mods															

EXHIBIT R-2a, RDT&E Project Justification							DATE: May 2009													
APPROPRIATION/BUDGET ACTIVITY RDT&E,N / BA-5			PROGRAM ELEMENT NUMBER AND NAME 0604261N, ACOUSTIC SEARCH SENSORS			PROJECT NUMBER AND NAME 9999, Congressional Adds														
COST (\$ in Millions)			FY 2008	FY 2009	FY 2010															
9999 Congressional Adds			.785																	
RDT&E Articles Qty																				
<p>A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:</p> <p>9999. Congressional Adds.</p> <p>B. ACCOMPLISHMENTS / PLANNED PROGRAM:</p> <p>Evaluate the ASW capability of the Deep Extended Echo Ranging System</p> <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:60%;">9C07A</td> <td style="width:10%;">FY 2008</td> <td style="width:10%;">FY 2009</td> <td style="width:10%;">FY 2010</td> </tr> <tr> <td>Accomplishments / Effort / Sub-total Cost</td> <td>.785</td> <td></td> <td></td> </tr> <tr> <td>RDT&E Articles Qty</td> <td></td> <td></td> <td></td> </tr> </table> <p>Deep Extended Echo Ranging (DEER) system. Evaluate the Anti-Submarine Warfare (ASW) capability of the Deep Extended Echo Ranging system which is employed in deep water environments where the Reliable Acoustic Path is present. This effort is consistent with the Navy's objective to provide a rapid search and area clearance capability.</p>									9C07A	FY 2008	FY 2009	FY 2010	Accomplishments / Effort / Sub-total Cost	.785			RDT&E Articles Qty			
9C07A	FY 2008	FY 2009	FY 2010																	
Accomplishments / Effort / Sub-total Cost	.785																			
RDT&E Articles Qty																				