CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2, RDT&E BUDGET ITEM JUSTIFICATION						DATE May 2009	
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 5**			R-1 ITEM NOMENCLATURE **0604501N/ADVANCED ABOVE WATER SENSORS**				
COST (In Millions)	FY 2008	FY 2009	FY 2010				
Total PE Cost	113.107	138.546	236.078				
3186 / Air and Missile Defense Radar	92.920	106.250	190.046				
3187 / Periscope Detection	14.733	7.525	7.237				
3188 / Dual-Band Radar	5.454	5.624	5.697				
3232 / Multi-Mission Signal Processor	0.000	0.000	33.098				
9999 / CONGRESSIONAL ADDS	0.000	19.147	0.000				

A. MISSION DESCRIPTION:

Air and Missile Defense Radar (AMDR): The AMDR suite is being developed to fulfill Integrated Air and Missile Defense requirements for the next generation cruisers and destroyers. The AMDR will provide multi-mission capabilities, 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 BMD capability, increased radar sensitivity and bandwidth over the current SPY-1 system is needed to detect, track and support engagements of advanced ballistic missile threats at the required ranges. For the Area Air Defense and Self Defense capability, increased sensitivity and clutter rejection 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 and material provide for the development of an active phased array radar with the required capabilities to pace the evolving threat. Modularity of hardware and software, a designed in-growth path for technology insertion, and Open Architecture (OA) Compliance are required for performance and technology enhancements throughout service life. Additional funding was requested based on an updated program cost estimate developed to reflect the current system concept, radar sensitivity requirements, and acquisition strategy. The updated program cost estimate also identified additional required scope in the areas of software development, systems engineering and testing.

Periscope Detection: The CVN Periscope Detection Radar program develops and delivers a radar that provides automatic detection and discrimination of submarine periscopes using advanced algorithms enabling discrimination of periscopes from surface contacts, buoys, small boats, floating mines, etc. This effort is based on an advanced development model, developed in the PE 0603553N Antisubmarine Warfare. System Engineering efforts under RDT&E funding will convert the Advanced Demonstration Model (ADM) variant previously developed and being installed to a production representative model that addresses manufacturability, supportability and reliability aspects as well as full system certification.

Dual-Band Radar (DBR) Upgrades: The DBR Upgrades will fund future upgrades/technology insertion efforts for the Multi-Function Radar (MFR)/Volume Search Radar (VSR)/Dual Band Radar (DBR) suite. Upgrades and technology inserts are required to maintain the level of force protection needed for ship defense against all threats envisioned in the littoral environment. The upgrades will include all aspects of the radar system/subsystems, including hardware and software. Specific subsystem areas include the Array, T/R module, Receiver/Exciter, Signal Data Processor and power/cooling systems.

Multi-Mission Signal Processor: Multi-Mission Signal Processor (MMSP) provides AAW/BMD Multi-mission capability for DDG 51-78 as part of DDG Modernization Program. Modifies SPY-1D Transmitter to enable dual beam for reduced frame times and better reaction time, and provides stability for all D(V) waveforms and avoid operational degradation. It improves performance in littoral, ducted clutter environments. Detects, tracks and support engagements of a broader range of threats. MMSP provides reduced environmental effects, and better track continuity on small threats in land clutter. Improves performance in electronic attack (EA) and chaff environments and provides greater commonality in computer programs and equipment.

B. PROGRAM CHANGE SUMMARY:

This PE was established for the FY2008 President's Budget. Previous Budget Submissions were PE 0604307N AEGIS Combat System Engineering - project 3044/Solid State Spy Radar and PE 0603513N/Shipboard System Component Development - project 4019/Radar Upgrades.

Congressional Adds: Congressional Adds are for development of a common digital sensor architecture and development a National Radio Frequency R&D and Tech Transfer Center. Deployed above water sensors will be in service beyond FY45 and are unable to achieve or sustain operational effectiveness. Requirement is to develop supportability solution for deployed above water sensors. RF technology for above water sensors is required to meet Navy Radar Program objectives. RF technology will be brought to a readiness level in preparation for insertion into manufacturing.

B. PROGRAM CHANGE SUMMARY:

Funding:	FY 2008	FY 2009	FY 2010
FY09 President's Budget	118.900	153.558	158.296
FY10 President's Budget	113.107	138.546	236.078
Total Adjustments	-5.793	-15.012	77.782
(U) Summary of Adjustments			
Congressional Adjustments	0.000	18.823	0.000
SBIR/STTR/FTT Assessment	-1.000	0.000	0.000
Program Adjustments	-4.793	-33.805	81.687
Rate/Misc Adjustments	0.000	-0.030	-3.905
Total	-5.793	-15.012	77.782

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION					DATE May 2009		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 5**	PROGRAM ELEMENT NUMBER AND NAME **0604501N/ADVANCED ABOVE WATER SENSORS**				PROJECT NUMBER AND NAME **3186/Air and Missile Defense Radar**		
COST (In Millions)	FY 2008	FY 2009	FY 2010				
Project Cost	92.920	106.250	190.046				
RDT&E Articles Qty	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 the next generation cruisers and destroyers. The AMDR will provide multi-mission capabilities, 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 BMD capability, increased radar sensitivity and bandwidth over the current SPY-1 system is needed to detect, track and support engagements of advanced ballistic missile threats at the required ranges. For the Area Air Defense and Self Defense capability, increased sensitivity and clutter rejection 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 and material provide for the development of an active phased array radar with the required capabilities to pace the evolving threat. Modularity of hardware and software, a designed in-growth path for technology insertion, and Open Architecture (OA) Compliance are required for performance and technology enhancements throughout service life. Additional funding was requested based on an updated program cost estimate developed to reflect the current system concept, radar sensitivity requirements, and acquisition strategy. The updated program cost estimate also identified additional required scope in the areas of software development, systems engineering and testing.

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION		DATE May 2009
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 5**	PROGRAM ELEMENT NUMBER AND NAME **0604501N/ADVANCED ABOVE WATER SENSORS**	PROJECT NUMBER AND NAME **3186/Air and Missile Defense Radar**

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2008	FY 2009	FY 2010
Accomplishments/Effort/Subtotal Cost	43.273	15.000	4.500
RDT&E Articles Quantity	0	0	0

R&D / RISK REDUCTION

Planned:

- High Voltage (HV) GaAs Field Effect Transistor (FET) technology producibility
- Technology Risk reduction of Digital Array Radar (DAR) / digital beamforming, array architectures, T/R modules, thermal management, and RF semiconductors.
- Critical component and subsystem demonstrations, integration and testing
- Conduct related international cooperative research projects, including ARTIST (U.K.), AUSPAR (Australia), and JUSRR (Japan).

	FY 2008	FY 2009	FY 2010
Accomplishments/Effort/Subtotal Cost	38.483	76.450	169.846
RDT&E Articles Quantity	0	0	0

SYSTEMS ENGINEERING

Planned:

- Participate in the development of threat definitions, performance requirements and radar specifications; perform radar systems performance analysis.
- Complete system requirements; resolve combat system and ship interfaces.
- Develop T&E master plan.
- Conduct AMDR competition and award development contract.
- Conduct System Functional Review (SFR); decompose radar design requirements.

	FY 2008	FY 2009	FY 2010
Accomplishments/Effort/Subtotal Cost	11.164	14.800	15.700
RDT&E Articles Quantity	0	0	0

PROGRAM MANAGEMENT SUPPORT

Planned:

- Program planning, assessment of technical alternatives, risk identification and mitigation.
- Cost and schedule development and execution.

CLASSIFICATION:	UNCLASSIFIED		
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION (CONTINUATION)			DATE May 2009
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 5**	PROGRAM ELEMENT NUMBER AND NAME **0604501N/ADVANCED ABOVE WATER SENSORS**	PROJECT NUMBER AND NAME **3186/Air and Missile Defense Radar**	

C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. and Name	FY 2008	FY 2009	FY 2010						Total Cost
RDTEN 0604300N - 3107 CG(X) Development	84.078	84.518	0.000						168.596
RDTEN 0604300N - 3106 Combat System Integration	0.819	57.467	0.000						58.286
RDTEN 0204201N - 3107 CG(X) Development	0.000	0.000	99.131						99.131
RDTEN 0204201N - 3106 Combat System Integration	0.000	0.000	50.891						50.891

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 allies, 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 multi-mission TAMD (BMD and Area AAW). System design will be accomplished using proven advanced technologies and commercial standards to lower schedule risk and develop a product with the lowest life-cycle cost. Program scope includes systems engineering design and development; development and testing of a pilot array; completion of a full Engineering Development Model (EDM) for land-based testing; and transition to production.

E. MAJOR PERFORMERS:

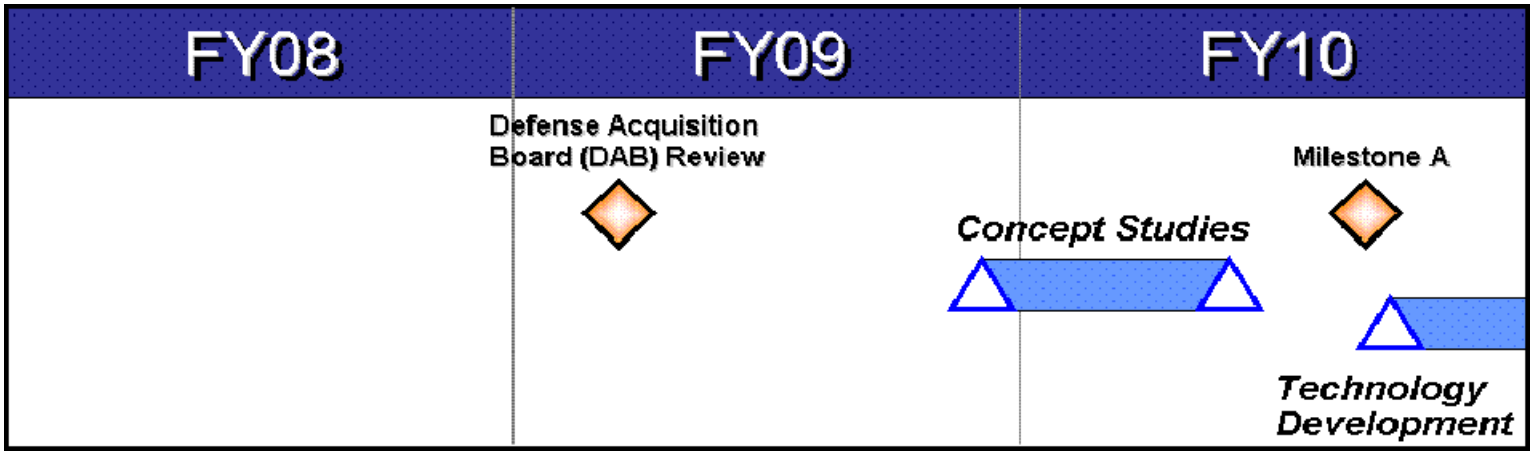
R&D/Risk Reduction: Raytheon, Northrop Grumman, Lockheed Martin

AMDR: TBD (Competitive Procurement)

CLASSIFICATION:	UNCLASSIFIED											
EXHIBIT R-3, RDT&E PROJECT COST ANALYSIS									DATE May 2009			
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 5**		PROGRAM ELEMENT NUMBER AND NAME **0604501N/ADVANCED ABOVE WATER SENSORS**				PROJECT NUMBER AND NAME **3186/Air and Missile Defense Radar**						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY Cost ($000)			FY 2009 Cost ($000)	FY 2009 Award Date	FY 2010 Cost ($000)	FY 2010 Award Date		Total Cost ($000)	Target Value of Contract
Risk Reduction	WR	SCSC, Wallops	0.812			1.840	DEC-08	4.080	DEC-09		6.732	0.000
	MIPR	DMEA	33.270			7.743	DEC-08	2.600	DEC-09		43.613	0.000
	CPFF	JHU/APL	1.300			1.105	DEC-08	1.000	DEC-09		3.405	0.000
	MIPR	MIT	0.600			0.640	DEC-08	0.500	DEC-09		1.740	0.000
	WR	NRL	2.500			2.645	DEC-08	0.425	DEC-09		5.570	0.000
	CPAF	BAE Systems	0.800			1.049	DEC-08	0.500	DEC-09		2.349	0.000
	WR	NAVFAC MID-ATLANTIC	3.991			0.000	DEC-08	0.000			3.991	0.000
	WR	NSWC/DD	0.000			1.912	DEC-08	0.500	DEC-09		2.412	0.000
	MIPR	DARPA	0.000			4.500	DEC-08	0.000			4.500	0.00
System Engineering	CPIF	TBD - CR/TD	0.000			30.000	SEP-09	132.000	JUL-10		162.000	0.000
	WR	VARIOUS-System Engineering	0.000			0.000	DEC-08	0.000			0.000	0.000
	CPFF	JHU/APL	13.462			14.339	DEC-08	13.595	DEC-09		41.396	0.000
	MIPR	MIT	3.069			2.360	DEC-08	2.431	DEC-09		7.860	0.000
	WR	NSWC/PHD	1.202			0.912	DEC-08	0.939	DEC-09		3.053	0.000
	WR	NSWC/CR	0.556			0.245	DEC-08	0.432	DEC-09		1.233	0.000
	WR	NRL	0.125			1.218	DEC-08	1.375	DEC-09		2.718	0.000
	CPFF	GTRI	0.467			1.264	DEC-08	1.302	DEC-09		3.033	0.000
	CPAF	BAE Systems	7.451			2.085	DEC-08	2.148	DEC-09		11.684	0.000
	VAR	VARIOUS-SPECIAL	3.078			0.000		0.000			3.078	0.000
	WR	NSWC/DD	11.716			9.338	DEC-08	9.618	DEC-09		30.672	0.000
	WR	PMRF	0.000			0.499	DEC-08	0.918	DEC-09		1.417	0.000
Subtotal Product Development			**84.399**			**83.694**		**174.363**			**342.456**	**0.000**
Remarks:												
Support/ Management Services	CPAF	BAE Systems	2.000			2.489		0.000			4.489	0.000
	Various	Various	9.063			19.137	VAR	12.064	VAR		40.264	0.000
Support Management Services	CPIF	TBD - PSS	0.000			0.830	JUL-09	3.419	JUL-10		4.249	0.000
Travel			0.100			0.100	NOV-08	0.200	NOV-09		0.400	0.000
Subtotal Management Services			**11.163**			**22.556**		**15.683**			**49.402**	**0.000**
Remarks:												

CLASSIFICATION:	UNCLASSIFIED											
EXHIBIT R-3, RDT&E PROJECT COST ANALYSIS									DATE May 2009			
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 5**		PROGRAM ELEMENT NUMBER AND NAME **0604501N/ADVANCED ABOVE WATER SENSORS**				PROJECT NUMBER AND NAME **3186/Air and Missile Defense Radar**						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY Cost ($000)			FY 2009 Cost ($000)	FY 2009 Award Date	FY 2010 Cost ($000)	FY 2010 Award Date		Total Cost ($000)	Target Value of Contract
Total Cost			**95.562**			**106.250**		**190.046**			**391.858**	**0.000**

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-4, SCHEDULE PROFILE		DATE September 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 5**	PROGRAM ELEMENT NUMBER AND NAME **0604501N/ADVANCED ABOVE WATER SENSORS**	PROJECT NUMBER AND NAME **3186/Air and Missile Defense Radar**



CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-4a, SCHEDULE DETAIL					DATE May 2009		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 5**	PROGRAM ELEMENT NUMBER AND NAME **0604501N/ADVANCED ABOVE WATER SENSORS**			PROJECT NUMBER AND NAME **3186/Air and Missile Defense Radar**			
Schedule Profile	FY 2008	FY 2009	FY 2010				
Defense Acquisition Board (DAB) Review		Q2					
Concept Studies		Q4	Q1-Q2				
Milestone A			Q4				
Technology Development			Q4				

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION					DATE May 2009		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 5**	PROGRAM ELEMENT NUMBER AND NAME **0604501N/ADVANCED ABOVE WATER SENSORS**				PROJECT NUMBER AND NAME **3187/Periscope Detection**		
COST (In Millions)	FY 2008	FY 2009	FY 2010				
Project Cost	14.733	7.525	7.237				
RDT&E Articles Qty	0	0	0				

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The CVN Periscope Detection Radar program develops and delivers a radar that provides semi-automatic detection and discrimination of submarine periscopes using advanced algorithms enabling discrimination of periscopes from surface contacts, buoys, small boats, floating mines, etc. This effort is based on an advanced development model, developed in the PE 0603553N, Surface Antisubmarine Warfare. System Engineering efforts under RDT&E funding will convert the Advanced Demonstration Model (ADM) variant previously developed and being installed to a production representative model that addresses manufacturability, supportability and reliability aspects as well as full system certification.

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION		DATE May 2009
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 5**	PROGRAM ELEMENT NUMBER AND NAME **0604501N/ADVANCED ABOVE WATER SENSORS**	PROJECT NUMBER AND NAME **3187/Periscope Detection**

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2008	FY 2009	FY 2010
Accomplishments/Effort/Subtotal Cost	14.733	7.525	7.237
RDT&E Articles Quantity	0	0	0

Planned:

- Design an ADM using established capabilities from previous radars (Algorithms utilized by Automatic Radar Periscope Detection Discrimination (ARPDD), technology based in part on the AN/SPQ-9B Anti-Ship Cruise Missile (ASCM) Radar)) with modern computing advances in processing capability being inserted into the system using an Open Architecture approach.
- Install ADM on platform(s)
- Perform test and evaluation

C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. and Name	FY 2008	FY 2009	FY 2010						Total Cost
02042228N/2040 Radar Support (OPN)	0.000	10.463	9.968						20.431

D. ACQUISITION STRATEGY:

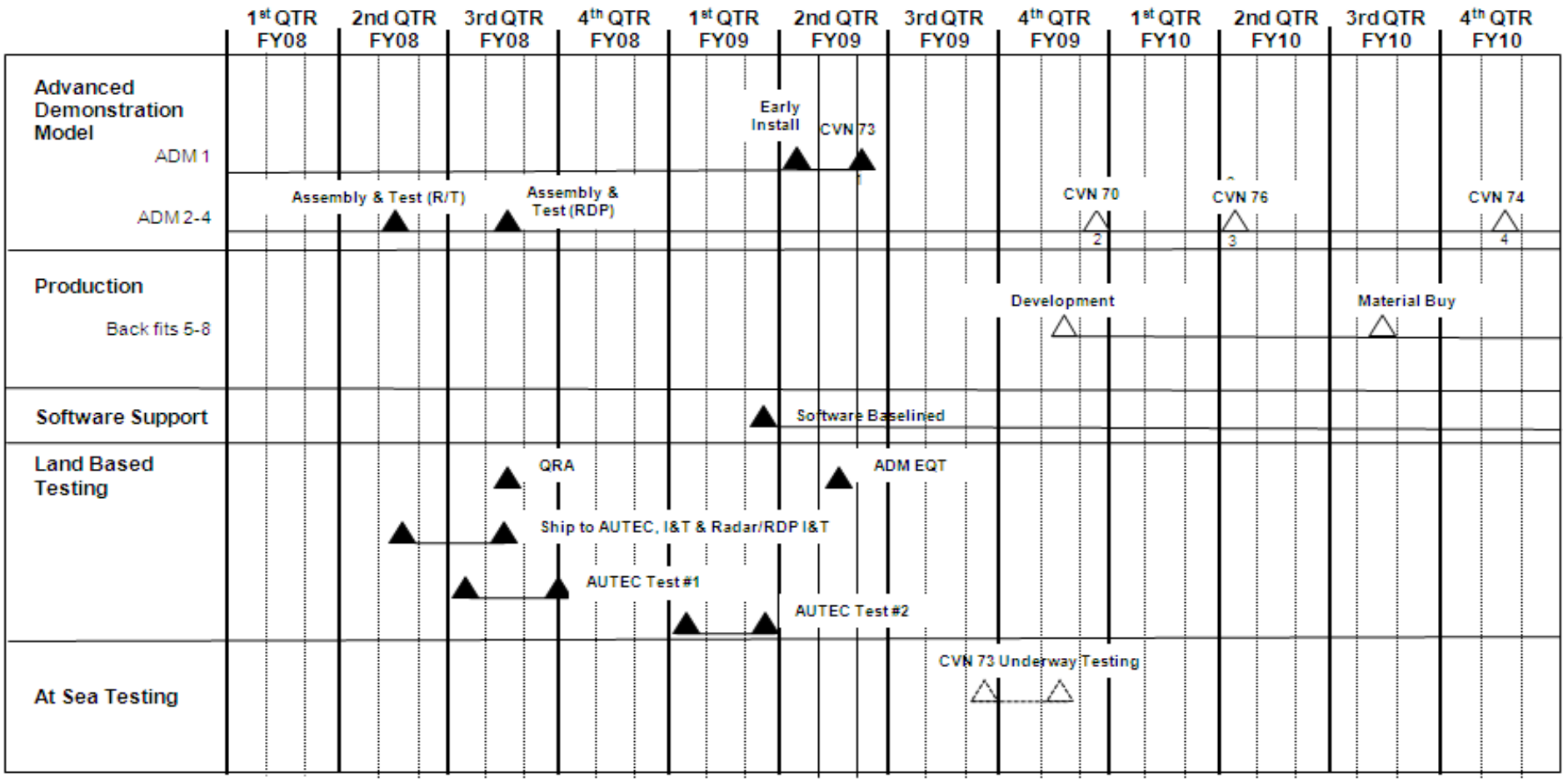
Periscope Detection : Current Program scope is for 11 total units - 10 for installation onboard CVNs and 1 at a to be determined shore site. Of these 11 units, 4 will be Advanced Demonstration Models (ADMs) and 7 will be Production Model units. Funding for 4 of the units will come from R&D (ADMs) in FY 06, FY 07 and FY 08 procurements, and 7 will be funded using OPN. The current proposed plan is for all units to be awarded sole source to Northrop Grumman Corporation (NGC) and 3 Phoenix Corporation. NGC will be responsible for the antenna, transmitter, and receiver. 3 Phoenix will be responsible for the processor for all 11 RDC units. Funding is also to be used to procure and install back-fit hardware/software to bring the first four ADM variants to production configuration.

E. MAJOR PERFORMERS:

NGC will be manufacturing the radar antenna, transmitter, and receiver. 3 Phoenix will be designing the initial radar signal processor under an existing SBIR contract. NSWC Crane will assume full integration responsibility for the three prototype RDCs and the seven production RDC units.

CLASSIFICATION:	UNCLASSIFIED											
EXHIBIT R-3, RDT&E PROJECT COST ANALYSIS									DATE May 2009			
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 5**		PROGRAM ELEMENT NUMBER AND NAME **0604501N/ADVANCED ABOVE WATER SENSORS**				PROJECT NUMBER AND NAME **3187/Periscope Detection**						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY Cost ($000)			FY 2009 Cost ($000)	FY 2009 Award Date	FY 2010 Cost ($000)	FY 2010 Award Date		Total Cost ($000)	Target Value of Contract
System Engineering	CPFF	NGC	7.430			5.209	JAN-09	2.255	DEC-09		14.894	0.000
System Installation	TBD	TBD	6.903			2.016	JAN-09	4.512	DEC-09		13.431	0.000
Subtotal Product Development			**14.333**			**7.225**		**6.767**			**28.325**	**0.000**
NSWC PHD	WR		0.200			0.200	NOV-08	0.200	NOV-09		0.600	0.000
OPTEVFOR	WR		0.000			0.000		0.200	NOV-09		0.200	0.000
Travel			0.200			0.100	NOV-08	0.070	NOV-09		0.370	0.000
Subtotal Test and Evaluation			**0.400**			**0.300**		**0.470**			**1.170**	**0.000**
Total Cost			**14.733**			**7.525**		**7.237**			**29.495**	**0.000**

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-4, SCHEDULE PROFILE		DATE
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 5**	PROGRAM ELEMENT NUMBER AND NAME **0604501N/ADVANCED ABOVE WATER SENSORS**	PROJECT NUMBER AND NAME **3187/Periscope Detection**



CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-4a, SCHEDULE DETAIL					DATE May 2009		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 5**	PROGRAM ELEMENT NUMBER AND NAME **0604501N/ADVANCED ABOVE WATER SENSORS**			PROJECT NUMBER AND NAME **3187/Periscope Detection**			
Schedule Profile	FY 2008	FY 2009	FY 2010				
Advanced Demonstration Model (ADM)	Q1-Q4	Q1-Q4	Q1-Q4				
Production		Q4	Q1-Q4				
Software Support		Q1-Q4	Q1-Q4				
Land Based Testing (AUTEC)	Q3-Q4	Q1-Q2					
At Sea Testing		Q3-Q4					

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION					DATE May 2009		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 5**	PROGRAM ELEMENT NUMBER AND NAME **0604501N/ADVANCED ABOVE WATER SENSORS**				PROJECT NUMBER AND NAME **3188/Dual-Band Radar**		
COST (In Millions)	FY 2008	FY 2009	FY 2010				
Project Cost	5.454	5.624	5.697				
RDT&E Articles Qty	0	0	0				

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The Dual-Band Radar (DBR) Upgrades will fund future upgrades/technology insertion efforts for the Multi-Function Radar (MFR)/Volume Search Radar (VSR)/Dual Band Radar (DBR) suite. Upgrades and technology inserts are required to maintain the level of force protection needed for ship defense against all threats envisioned in the littoral environment. The upgrades will include all aspects of the radar system/subsystems, including hardware and software. Specific subsystem areas include the Array, T/R module, Receiver/Exciter, Signal Data Processor and power/cooling systems.

CLASSIFICATION:	UNCLASSIFIED		
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION			DATE May 2009
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME	
RDTEN/BA 5	**0604501N/ADVANCED ABOVE WATER SENSORS**	**3188/Dual-Band Radar**	

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2008	FY 2009	FY 2010
Accomplishments/Effort/Subtotal Cost	3.140	3.000	3.000
RDT&E Articles Quantity	0	0	0

Radar Upgrades and Technology Insertion for the MFR/VSR/DBR hardware and software.

	FY 2008	FY 2009	FY 2010
Accomplishments/Effort/Subtotal Cost	2.314	2.374	2.422
RDT&E Articles Quantity	0	0	0

Government Engineering Services and Program Management 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.

	FY 2008	FY 2009	FY 2010
Accomplishments/Effort/Subtotal Cost	0.000	0.250	0.275
RDT&E Articles Quantity	0	0	0

Provide Program Management in support of radar upgrades and technology insertion.

C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. and Name	FY 2008	FY 2009	FY 2010						Total Cost
BLI 211900/SCN DDG-1000	2,906.867	1,504.297	1,083.715						5,494.879
BLI 2001/SCN CARRIER REPLACEMENT PROGRAM	242.597	0.000	0.000						242.597

D. ACQUISITION STRATEGY:

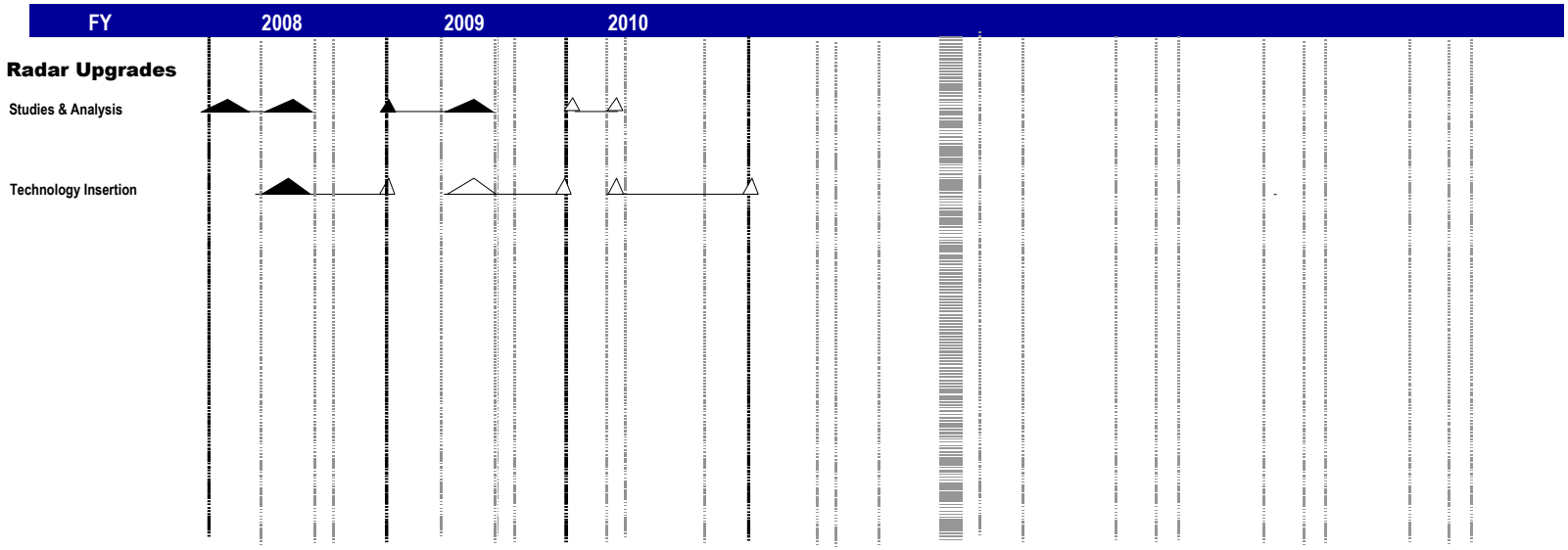
Upgrades will be developed to address lessons learned and technology refresh for DBR systems on multiple ship classes.

E. MAJOR PERFORMERS:

Northrop Grumman Ship Systems, Raytheon and Lockheed Martin.

CLASSIFICATION:	UNCLASSIFIED											
EXHIBIT R-3, RDT&E PROJECT COST ANALYSIS									DATE May 2009			
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 5**		PROGRAM ELEMENT NUMBER AND NAME **0604501N/ADVANCED ABOVE WATER SENSORS**				PROJECT NUMBER AND NAME **3188/Dual-Band Radar**						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY Cost ($000)			FY 2009 Cost ($000)	FY 2009 Award Date	FY 2010 Cost ($000)	FY 2010 Award Date		Total Cost ($000)	Target Value of Contract
Systems Engineering	C/CPAF	DD (X) Design Agent	3.140			3.000	FEB-09	3.000	FEB-10		9.140	0.000
Subtotal Product Development			**3.140**			**3.000**		**3.000**			**9.140**	**0.000**
Remarks:												
Program Management Support	C/CPFF	Various	0.000			0.250	DEC-08	0.275	DEC-09		0.525	0.000
Subtotal Management Services			**0.000**			**0.250**		**0.275**			**0.525**	**0.000**
Remarks:												
	WR	Other Government Activities	0.479			0.574	DEC-08	0.497	DEC-09		1.550	0.000
	WR	NSWC/Dahlgren	0.450			0.550	DEC-08	0.600	DEC-09		1.600	0.000
	WR	NSWC/PHD	0.725			0.450	DEC-08	0.475	DEC-09		1.650	0.000
	WR	NSWC Crane	0.150			0.200	DEC-08	0.225	DEC-09		0.575	0.000
	WR	NRL	0.150			0.200	DEC-08	0.225	DEC-09		0.575	0.000
	CPFF	JHU/APL	0.060			0.100	FEB-09	0.100	FEB-10		0.260	0.000
		NSMA	0.300			0.300	FEB-09	0.300	FEB-10		0.900	0.000
Subtotal Government Engineering Support			**2.314**			**2.374**		**2.422**			**7.110**	**0.000**
Remarks:												
Total Cost			**5.454**			**5.624**		**5.697**			**16.775**	**0.000**

CLASSIFICATION:	UNCLASSIFIED	
	EXHIBIT R-4, SCHEDULE PROFILE	DATE May 2009
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 5**	PROGRAM ELEMENT NUMBER AND NAME **0604501N/ADVANCED ABOVE WATER SENSORS**	PROJECT NUMBER AND NAME **3188/Dual-Band Radar**



CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-4a, SCHEDULE DETAIL					DATE May 2009		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 5**	PROGRAM ELEMENT NUMBER AND NAME **0604501N/ADVANCED ABOVE WATER SENSORS**			PROJECT NUMBER AND NAME **3188/Dual-Band Radar**			
Schedule Profile	FY 2008	FY 2009	FY 2010				
Radar Upgrade Studies and Analysis	Q1	Q1	Q1				
Radar Upgrade Technology Insertion	Q2-Q4	Q2-Q4	Q2-Q4				

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION					DATE May 2009		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 5**	PROGRAM ELEMENT NUMBER AND NAME **0604501N/ADVANCED ABOVE WATER SENSORS**				PROJECT NUMBER AND NAME **3232/Multi-Mission Signal Processor**		
COST (In Millions)	FY 2008	FY 2009	FY 2010				
Project Cost	0.000	0.000	33.098				
RDT&E Articles Qty	0	0	0				

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

Multi-Mission Signal Processor (MMSP) provides AAW/BMD Multi-mission capability for DDG 51-78 as part of DDG Modernization Program. Modifies SPY-1D Transmitter to enable dual beam for reduced frame times and better reaction time, and provides stability for all D(V) waveforms and avoid operational degradation. It improves performance in littoral, ducted clutter environments. Detects, tracks and support engagements of a broader range of threats. MMSP provides reduced environmental effects, and better track continuity on small threats in land clutter. Improves performance in electronic attack (EA) and chaff environments and provides greater commonality in computer programs and equipment.

Multi-Mission Signal Processor FY 10

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION		DATE May 2009
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 5**	PROGRAM ELEMENT NUMBER AND NAME **0604501N/ADVANCED ABOVE WATER SENSORS**	PROJECT NUMBER AND NAME **3232/Multi-Mission Signal Processor**

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2008	FY 2009	FY 2010
Accomplishments/Effort/Subtotal Cost	0.000	0.000	33.098
RDT&E Articles Quantity	0	0	0

SYSTEMS ENGINEERING

Multi-Mission Signal Processor FY 10 and outyear funding for Cruisers/Destroyers recently transferred from 0604307N/1447 to 0604501N/3232.

FY10 Plan: Support Initial Capability Demonstration at Combat System Development Engineering Site.

C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. and Name	FY 2008	FY 2009	FY 2010						Total Cost
BLI 2980/OPN Items Less Than $5M	6.000	0.200	18.000						24.200

D. ACQUISITION STRATEGY:

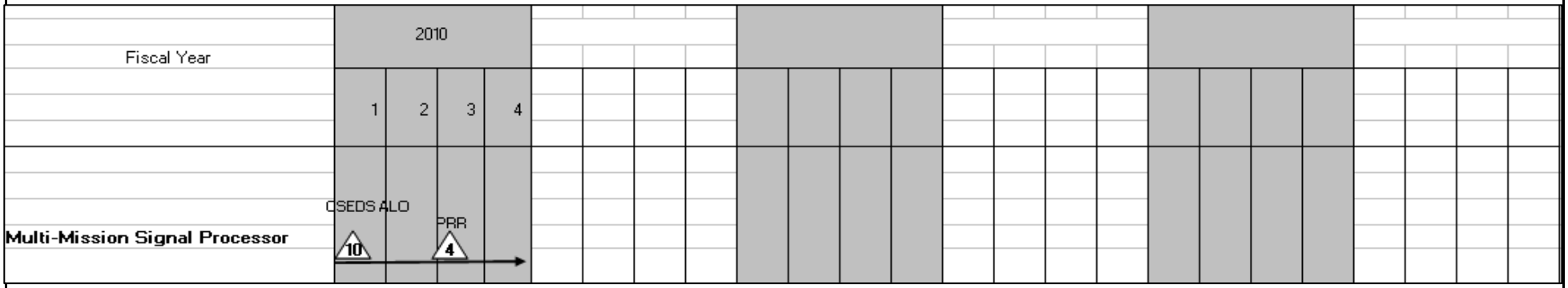
Multi-Mission Signal Processor (MMSP) provides AAW/BMD Multi-mission capability for DDG 51-78 as part of DDG Modernization Program and leverages BMD 4.0.1 and SPY-1D(V) designs. This MMSP development efforts will lead to the OPN procurement for sites and shipsets.

E. MAJOR PERFORMERS:

Lockheed Martin, Moorestown, NJ

CLASSIFICATION:	UNCLASSIFIED											
EXHIBIT R-3, RDT&E PROJECT COST ANALYSIS									DATE May 2009			
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 5**		PROGRAM ELEMENT NUMBER AND NAME **0604501N/ADVANCED ABOVE WATER SENSORS**				PROJECT NUMBER AND NAME **3232/Multi-Mission Signal Processor**						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY Cost ($000)			FY 2009 Cost ($000)	FY 2009 Award Date	FY 2010 Cost ($000)	FY 2010 Award Date		Total Cost ($000)	Target Value of Contract
SYSTEM ENGINEERING	CPFF	Lockheed Martin	0.000			0.000		22.800	DEC-09		22.800	0.000
SYSTEM ENGINEERING	VAR	VARIOUS	0.000			0.000		10.298	DEC-09		10.298	0.000
Subtotal Product Development			**0.000**			**0.000**		**33.098**			**33.098**	**0.000**
Remarks:												
Total Cost			**0.000**			**0.000**		**33.098**			**33.098**	**0.000**

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-4, SCHEDULE PROFILE		DATE May 2009
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 5**	PROGRAM ELEMENT NUMBER AND NAME **0604501N/ADVANCED ABOVE WATER SENSORS**	PROJECT NUMBER AND NAME **3232/Multi-Mission Signal Processor**



CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-4a, SCHEDULE DETAIL					DATE May 2009		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 5**	PROGRAM ELEMENT NUMBER AND NAME **0604501N/ADVANCED ABOVE WATER SENSORS**			PROJECT NUMBER AND NAME **3232/Multi-Mission Signal Processor**			
Schedule Profile	FY 2008	FY 2009	FY 2010				
MMSP CSEDS AEGIS Light Off (ALO)			Q1				
MMSP Production Readiness Review (PRR)			Q3				

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION					DATE May 2009		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 5**	PROGRAM ELEMENT NUMBER AND NAME **0604501N/ADVANCED ABOVE WATER SENSORS**				PROJECT NUMBER AND NAME **9999/CONGRESSIONAL ADDS**		
COST (In Millions)	FY 2008	FY 2009	FY 2010				
Project Cost	0.000	19.147	0.000				
RDT&E Articles Qty	0	0	0				

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

Common Below Decks Affordable Architecture (9D77A / $3.191M) - Congressional Add is to develop a common digital sensor architecture and to develop supportability solution for deployed above water sensors.

National Radio Frequency R&D and Tech Transfer Center (9D78A / $3.989M) - Congressional Add for RF technology. RF technology for above water sensors is required to meet Navy Radar Program objectives. RF technology will be brought to a readiness level in preparation for insertion into manufacturing.

Advanced Sensor Development (9D79A / $11.967M) - Congressional Add to develop and demonstrate the technology required to sustain supportability solution for deployed above water sensors. Efforts to be performed will be in the technology development phase to include interpreting user needs and operational capabilities, developing system performance and limitation specification, developing functional definitions for technologies, demonstrate system functionality, demonstrate integrated system ,and demonstrate and validate systems concepts and technology maturity.