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 0604218N Air/Ocean Equipment Engineering			
COST ($ in Millions)	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
Total PE Cost	**4.738**	**5.731**	**7.485**					
2345 Fleet METOC Equipment	3.236	4.064	4.827					
2346 METOC Sensor Engineering	1.502	1.667	2.658					
Quantity of RDT&E Articles								

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Air/Ocean Equipment Engineering (AOEE) Program Element provides future mission capabilities to support naval combat forces. This program engineers and developmentally tests organic and remote sensors, communication interfaces, and processing and display devices. These equipments are engineered to measure, ingest, store, process, distribute and display conditions of the physical environment that are essential to the optimum employment and performance of naval warfare systems. AOEE also engineers capabilities for shipboard and shore-based tactical systems. A major thrust area for the AOEE program is to provide the engineering development of specialized equipment and measurement capabilities that are intended to monitor specific conditions of the physical environment in hostile and remote areas. With such capabilities, the war fighters' situational awareness of the operational effects of the physical environment are made more certain.

Funding increases in FY10 reflect 1) the beginning of the System Development and Demonstration (SDD) phase of the Littoral Battlespace Sensing - Autonomous Undersea Vehicle (LBS-AUV) portion of the Littoral Battlespace Sensors - Unmanned Undersea Vehicle (LBS-UUV) program (2345 Fleet METOC Equipment), and 2) increased technique & deployment development efforts in support of the Unmanned Aerial Vehicle (UAV) automated Meteorological and Oceanographic (METOC) sensors project (2346 METOC Sensor Engineering).

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 0604218N Air/Ocean Equipment Engineering

(U) C. PROGRAM CHANGE SUMMARY:

(U) Funding:	FY 2008	FY 2009	FY 2010	FY 2011
FY09 President's Submit	5.054	5.750	6.167	
FY10 OSD Submit	4.738	5.731	7.485	
Total Adjustments	(0.316)	(0.019)	1.318	
Summary of Adjustments				
Program Adjustments	(0.316)		1.406	
Miscellaneous Adjustments		(0.019)	(0.088)	
Subtotal	(0.316)	(0.019)	1.318	

(U) Schedule:

Schedules for the Meteorological and Oceanographic (METOC) Future Mission Capabilities (FMC) project and the Littoral Battlespace Sensors - Unmanned Undersea Vehicle (LBS-UUV) program have been updated to reflect increased development efforts in FY10.

(U) Technical:

Not Applicable

EXHIBIT R-2a, RDT&E Project Justification						DATE: May 2009		
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5	PROGRAM ELEMENT NUMBER AND NAME 0604218N Air/Ocean Equipment Engineering				PROJECT NUMBER AND NAME 2345 Fleet METOC Equipment			
COST ($ in Millions)	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
Project Cost	**3.236**	**4.064**	**4.827**					
RDT&E Articles Qty								

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This project provides for the engineering and manufacturing development of sensors, communication interfaces, and processing and display equipment. This equipment is designed to provide future mission capabilities for war fighters to measure, ingest, store, process, distribute and display meteorological and oceanographic (METOC) parameters and derived products. Major emphasis areas include the Tactical Environmental Support System (TESS), and the associated Navy Integrated Tactical Environmental Subsystem (NITES), NITES Next Generation (Next), the Marine Corps Meteorological Mobile Facility Replacement (METMF(R)), METMF(R) Next Generation (NEXGEN), the Environmental Satellite Receiver Processor (ESRP) (comprised of AN/SMQ-11 (sea and shore configuration) and AN/FMQ-17 (shore configuration)) satellite data receiver/recorder. This project also exploits new government off-the-shelf (GOTS)/commercial off-the-shelf (COTS) technologies, tactical sensors and web enablement for the Navy's computer-based tactical shipboard and shore capability used to predict and assess the operational effects of the physical environment on the performance of platforms, weapons and sensor systems. This project includes development of warfare specific mission planning modules to support unmanned systems with integration of data from environmental and tactical sensor systems, model forecast information and Geospatial Information & Services Databases. This project also supports development of autonomous environmental sensing systems for situational awareness and tactical decision aid/mission planner support, as well as iridium and advanced satellite communication integration in meteorological and oceanographic (METOC) sensor, vehicle control and mission planning systems that will be required to achieve full reach back capability.

Funding increase in FY10 reflects the beginning of the System Development and Demonstration (SDD) phase of the Littoral Battlespace Sensing - Autonomous Undersea Vehicle (LBS-AUV) portion of the Littoral Battlespace Sensors - Unmanned Undersea Vehicle (LBS-UUV) program.

EXHIBIT R-2a, RDT&E Project Justification			DATE: May 2009
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5	PROGRAM ELEMENT NUMBER AND NAME 0604218N Air Ocean Equipment Engineering	PROJECT NUMBER AND NAME 2345 Fleet METOC Equipment	

(U) B. Accomplishments/Planned Program

Meteorological and Oceanographic (METOC) Future Mission Capabilities (FMC)	FY 08	FY 09	FY 10	FY 11
Accomplishments/Effort/Subtotal Cost	0.597	1.065	1.817	
RDT&E Articles Quantity				

FY08 - Began technical evaluation and selection of autonomous ocean and atmospheric sensor packages; performed sensor package capability demonstration testing. Developed Hazardous Weather Detection and Display Capability (HWDDC), and Tactical Environmental Processor (TEP) data collection and fusion systems.

FY09 - Continuation of FY08 efforts. Conduct system development and demonstration for environmental equipment to include associated engineering and support efforts. Continue development advanced tools and techniques for METOC asset allocation, METOC decision support applications and interfaces to tactical and strategic decision aids. Develop the Hazardous Weather Detection and Display Capability (HWDDC), Tactical Environmental Processor (TEP), and Littoral Battlespace Sensors - Unmanned Undersea Vehicle (LBS-UUV) data collection and fusion systems.

FY10 - Continuation of FY09 efforts. Continue advanced tools and techniques for METOC asset allocation, METOC decision support applications and interfaces to tactical and strategic decision aids along with component and prototype efforts associated with acquiring environmental data. Development of an end-to-end methodology to collect, fuse, and integrate these data into Navy and DoD networks and command and control nodes. Continue development of Tactical Environmental Processor (TEP), and Littoral Battlespace Sensors - Unmanned Undersea Vehicle (LBS-UUV) data collection and fusion systems.

EXHIBIT R-2a, RDT&E Project Justification			DATE: May 2009
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5	PROGRAM ELEMENT NUMBER AND NAME 0604218N Air Ocean Equipment Engineering	PROJECT NUMBER AND NAME 2345 Fleet METOC Equipment	

(U) B. Accomplishments/Planned Program

Littoral Battlespace Sensors - Unmanned Undersea Vehicle (LBS-UUV)	FY 08	FY 09	FY 10	FY 11
Accomplishments/Effort/Subtotal Cost	0.117	0.100	2.406	
RDT&E Articles Quantity				

FY08 - Developed unmanned system mission modules for forward deployed oceanographers and system operators to improve deployment effectiveness. Began technical evaluation and selection of autonomous ocean and atmospheric sensor packages; perform sensor package capability demonstration testing. Developed Littoral Battlespace Sensors - Unmanned Undersea Vehicle (LBS-UUV) data collection and fusion systems.

FY09 - Complete sensor based atmospheric sensing Analysis of Alternatives (AoA) for both stationary and expeditionary applications (including application of UAV's (Unmanned Airborne Vehicle's) and airborne sensors). Complete selection of potential solutions. Complete related testing. Begin Program Life Cycle Cost Estimate (PLCCE). Develop system integration requirements, system performance specifications, and begin CDD (Capabilities Development Document) development. Begin interoperability and system security studies and identify related requirements. Begin definition of the LBSF&I UUV Spiral 2 system. Begin development of the Increment 2 system. Conduct studies as required.

FY10 - Complete the System Development and Demonstration (SDD) phase of the Littoral Battlespace Sensing - Glider (LBS-G) system (Milestone C is scheduled for Q2FY10). Complete at-sea and ashore Development Testing and Evaluation (DT&E) of the complete end-to-end glider system including command and control, mission planning, launch and recovery, mission profile characteristics and other Key Performance Parameters (KPPs) and Key System Parameters (KSAs). Continue developing the LBS-G Spiral 2.0 definition and associated engineering studies and analyses of alternatives.
Funding increase reflects the beginning of the System Development and Demonstration (SDD) phase of the Littoral Battlespace Sensing - Autonomous Undersea Vehicle (LBS-AUV) portion of the Littoral Battlespace Sensors - Unmanned Undersea Vehicle (LBS-UUV) program.

EXHIBIT R-2a, RDT&E Project Justification			DATE: May 2009
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5	PROGRAM ELEMENT NUMBER AND NAME 0604218N Air Ocean Equipment Engineering	PROJECT NUMBER AND NAME 2345 Fleet METOC Equipment	

(U) B. Accomplishments/Planned Program

USMC Meteorological Mobile Facility (Replacement) Next Generation (METMF(R) NEXGEN)	FY 08	FY 09	FY 10	FY 11
Accomplishments/Effort/Subtotal Cost	2.217	1.500	0.100	
RDT&E Articles Quantity				

FY08 - Conducted verification & validation testing of METMF(R) NEXGEN (formerly METMF(R) NG) prototypes and prepared for delivery. Funds realigned from the Future Meteorological and Oceanographic (METOC) Capabilities program.

FY09 - Conduct Engineering Change Proposals (ECPs) to the METMF(R) NEXGEN prototype systems.

FY10 - Conduct Joint Interoperability Testing, and ECP's as needed, of the METMF(R) NEXGEN prototype systems.

EXHIBIT R-2a, RDT&E Project Justification			DATE: May 2009
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5	PROGRAM ELEMENT NUMBER AND NAME 0604218N Air Ocean Equipment Engineering	PROJECT NUMBER AND NAME 2345 Fleet METOC Equipment	

(U) B. Accomplishments/Planned Program

Naval Integrated Tactical Environmental System Next Generation (NITES-Next)	FY 08	FY 09	FY 10	FY 11
Accomplishments/Effort/Subtotal Cost	0.000	1.082	0.192	
RDT&E Articles Quantity				

FY09 - Software test and integration (developed in PE 0603207N, project 2343 Tactical METOC Applications) related to equipment and infrastructure in support of system engineering activities for Naval Integrated Tactical Environmental System Next Generation (NITES-Next). Efforts include extensive integration and test efforts on infrastructure for developmental test and evaluation (DT&E), and extensive architecture development, engineering, and design required in preparation for Milestone decision for the NITES-Next program.

FY10 - Continue software test and integration (developed in PE 0603207N, project 2343 Tactical METOC Applications) related to equipment and infrastructure in support of system engineering activities for Naval Integrated Tactical Environmental System Next Generation (NITES-Next). Efforts include integration and test efforts on infrastructure for developmental test and evaluation (DT&E) required in preparation for Milestone decision for NITES-Next.

EXHIBIT R-2a, RDT&E Project Justification			DATE: May 2009
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5	PROGRAM ELEMENT NUMBER AND NAME 0604218N Air Ocean Equipment Engineering	PROJECT NUMBER AND NAME 2345 Fleet METOC Equipment	

(U) B. Accomplishments/Planned Program

Environmental Satellite Receiver Processor (ESRP)	FY 08	FY 09	FY 10	FY 11
Accomplishments/Effort/Subtotal Cost	0.305	0.317	0.312	
RDT&E Articles Quantity				

FY08 - Continued software integration of new Satellite Sensors and Polar Orbiting Environmental Satellite (POES).
* Commenced and completed development and integration to provide new functionality and capability to the ESRP System and provided technical support and analysis to determine impacts of future satellite telemetries on the ESRP systems.

FY09 - Continue and complete software integration of new Satellite Sensors for Polar Orbiting Environmental Satellite (POES).
* Commence Software development in support of Polar Orbiting Environmental Satellite (POES) National Preparatory Project (NPP) for Environmental Satellite Receiver Processors (ESRP).
* Commence and complete engineering research to determine prospective candidate technologies and/or products to augment the capabilities of ESRP and provided technical support and analysis to determine impacts of future satellite telemetries on the ESRP systems.

FY10 - Continue and complete software integration of new Satellite Sensors for Polar Orbiting Environmental Satellite (POES).
* Commence Software development in support of Polar Orbiting Environmental Satellite (POES) National Preparatory Project (NPP) for Environmental Satellite Receiver Processors (ESRP).
* Commence and complete engineering research to determine prospective candidate technologies and/or products to augment the capabilities of ESRP and provided technical support and analysis to determine impacts of future satellite telemetries on the ESRP systems.

FY09 - 10 provides for continuous tech refresh for insertion of new technologies into the existing baseline system.

EXHIBIT R-2a, RDT&E Project Justification		DATE: May 2009
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5	PROGRAM ELEMENT NUMBER AND NAME 0604218N Air Ocean Equipment Engineering	PROJECT NUMBER AND NAME 2345 Fleet METOC Equipment

(U) C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
OPN 4226 METEOROLOGICAL EQUIPMENT	16.625	24.669	21.458					

Related RDT&E: PE 0603207N, Air/Ocean Tactical Applications

(U) D. ACQUISITION STRATEGY:

Acquisition, management and contracting strategies are to support engineering and manufacturing development by providing funds to Naval Research Laboratories (NRL) and miscellaneous contractors, with management oversight by the Program Executive Officer for Command, Control, Communications, Computers and Intelligence (PEO C4I).

(U) E. MAJOR PERFORMERS:

N/A

(U) F. METRICS:

Earned Value Management (EVM) is used for metrics reporting and risk management.

Exhibit R-3 Cost Analysis (page 1)									DATE: May 2009			
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5			PROGRAM ELEMENT 0604218N Air Ocean Equipment Engineering					PROJECT NUMBER AND NAME 2345 Fleet METOC Equipment				
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 09 Cost	FY 09 Award Date	FY 10 Cost	FY 10 Award Date	FY 11 Cost	FY 11 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Product Development												
	WX	NRL	10.905	0.980	N/A	1.602	N/A					
	WX	SSCs	5.945	0.506	N/A	1.070	N/A					
	CP	RAYTHEON	2.559		N/A		N/A					
	NA	MISC	14.794		N/A		N/A					
	CP	MISC		2.368	N/A	1.945	N/A					
Subtotal Product Development			34.203	3.854	N/A	4.617	N/A					
Remarks:												
Support Costs												
	CP	SSA/CSC	1.312		N/A		N/A					
Subtotal Support Costs			1.312	0.000	N/A	0.000	N/A					
Remarks:												

Exhibit R-3 Cost Analysis (page 2)										DATE: May 2009		
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5		**PROGRAM ELEMENT** 0604218N Air Ocean Equipment Engineering						**PROJECT NUMBER AND NAME** 2345 Fleet METOC Equipment				
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 09 Cost	FY 09 Award Date	FY 10 Cost	FY 10 Award Date	FY 11 Cost	FY 11 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Test & Evaluation												
	WX	OPTEVFOR	0.394	0.010	N/A	0.010	N/A					
Subtotal Test & Evaluation			0.394	0.010	N/A	0.010	N/A					
Remarks:												
Management Services												
	CP	MISC		0.200	N/A	0.200	N/A					
Subtotal Management Services			0.000	0.200	N/A	0.200	N/A					
Remarks:												
Total Cost			35.909	4.064	N/A	4.827	N/A					

EXHIBIT R4, Schedule Profile																																**DATE:** May 2009
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5					**PROGRAM ELEMENT NUMBER AND NAME** 0604218N Air Ocean Equipment Engineering												**PROJECT NUMBER AND NAME** 2345 Fleet METOC Equipment - Program: Meteorological and Oceanographic (METOC) Future Mission Capabilities (FMC)																			
Fiscal Year	2008				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	3	4	1	2	3	4
Ocean Sensors	Small/Micro Current Buoy & Fusion →																															
	Littoral/Riverine Sensors →																															
Ocean Sensors TTS	AQS-20 EPMA Develop/LCS Integration →																															
	BQN-17/UQN-4 →																															
Atmospheric Sensors	Fixed & Expeditionary Sensors →																															

EXHIBIT R4, Schedule Profile

Exhibit R-4a, Schedule Detail					**DATE:** May 2009			
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5				**PROJECT NUMBER AND NAME** 2345 Fleet METOC Equipment - Program: Meteorological and Oceanographic (METOC) Future Mission Capabilities (FMC)				
Schedule Profile	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
Ocean Sensors								
Small/Micro Current Buoy & Fusion	1Q - 4Q	1Q - 4Q						
Littoral/Riverine Sensors	1Q - 4Q	1Q - 4Q	1Q - 4Q					
Ocean Sensors TTS								
AQS-20 EPMA Develop/LCS Integration	1Q - 4Q	1Q - 4Q	1Q - 4Q					
BQN-17/UQN-4	1Q - 4Q	1Q - 4Q						
Atmospheric Sensors								
Fixed & expeditionary Sensors	1Q - 4Q	1Q - 4Q	1Q - 4Q					

EXHIBIT R4, Schedule Profile																															
																					DATE: May 2009										
APPROPRIATION/BUDGET ACTIVITY					PROGRAM ELEMENT NUMBER AND NAME												PROJECT NUMBER AND NAME														
RDT&E, N / BA-5					0604218N Air Ocean Equipment Engineering												2345 Fleet METOC Equipment - Program: Littoral Battlespace Sensors - Unmanned Undersea Vehicle (LBS-UUV)														
Fiscal Year	2008				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	3	4	1	2	3	4
LBS-UUV	Studies	AUV MS B			Spiral 1 AUV Sys Dev & Dem																											
		Glider MS B			Spiral 1 Glider Sys Dev & Dem								Glider MS C			Glider IOC															

Exhibit R-4a, Schedule Detail					**DATE:** May 2009			
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5				**PROJECT NUMBER AND NAME** 2345 Fleet METOC Equipment - Program: Littoral Battlespace Sensors - Unmanned Undersea Vehicle (LBS-UUV)				
Schedule Profile	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
LBS-UUV								
Gliders								
Milestone B (MS B)	2Q							
System Development & Demonstration (SDD)	3Q - 4Q	1Q - 4Q	1Q - 2Q					
Milestone C (MS C)			2Q					
Initial Operating Capability (IOC)			4Q					
Full Operating Capability (FOC)								
Spiral 2.0 Development								
AUV								
Milestone B (MS B)	2Q							
System Development & Demonstration (SDD)			1Q - 4Q					
Milestone C (MS C)								
Initial Operating Capability (IOC)								
Full Operating Capability (FOC)								
Spiral 2.0 Development								

Exhibit R-4a, Schedule Detail

EXHIBIT R4, Schedule Profile

DATE: May 2009

APPROPRIATION/BUDGET ACTIVITY	**PROGRAM ELEMENT NUMBER AND NAME**	**PROJECT NUMBER AND NAME**
RDT&E, N / BA-5	0604218N Air Ocean Equipment Engineering	2345 Fleet METOC Equipment - Program: USMC Meteorological Mobile Facility (Replacement) Next Generation (METMF(R) NEXGEN)

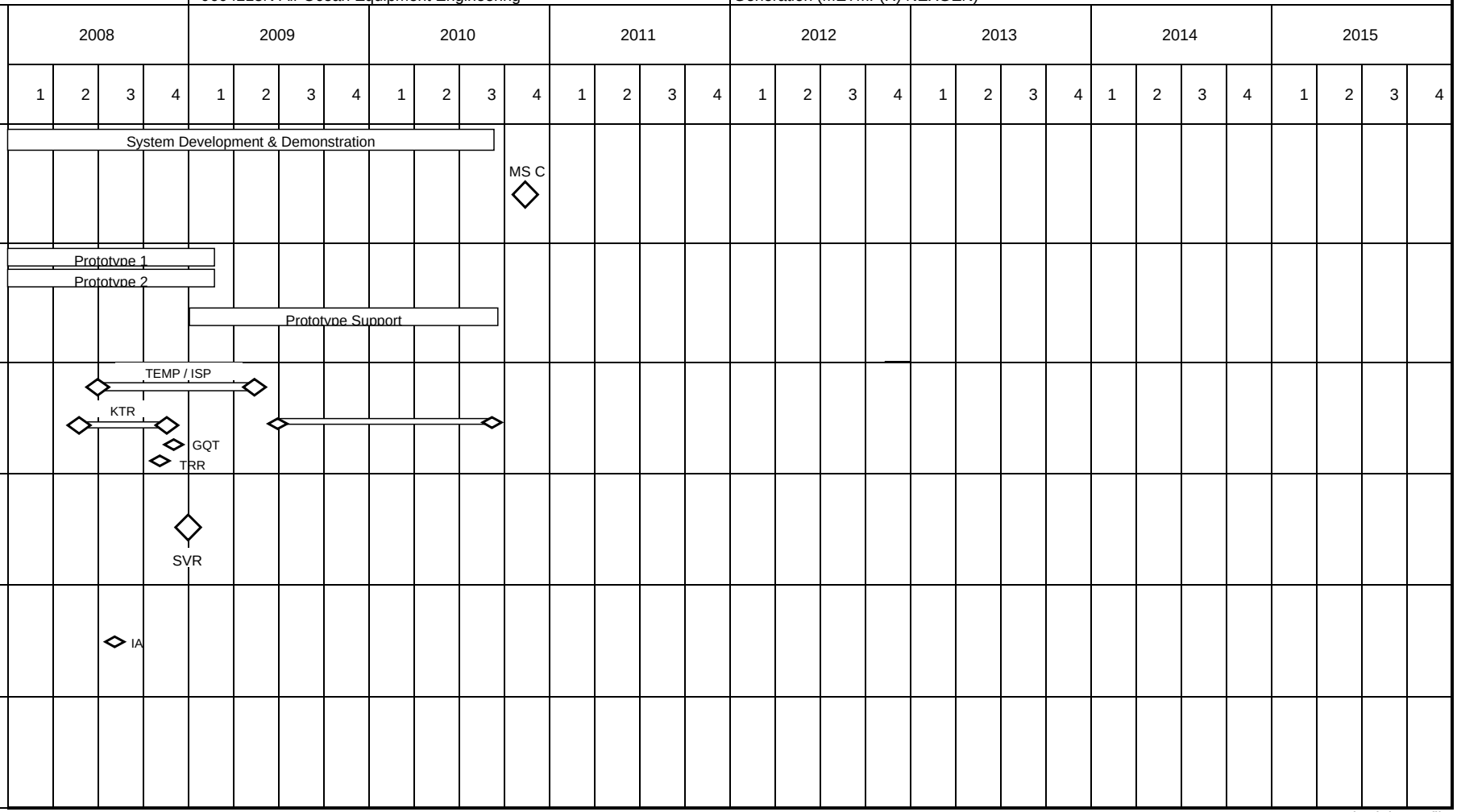

EXHIBIT R4, Schedule Profile

Exhibit R-4a, Schedule Detail					**DATE:** May 2009			
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5				**PROJECT NUMBER AND NAME** 2345 Fleet METOC Equipment - Program: USMC Meteorological Mobile Facility (Replacement) Next Generation (METMF(R) NEXGEN)				
Schedule Profile	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
Acquisition Milestones								
System Development & Demonstration	1Q - 4Q	1Q - 2Q						
MS C			4Q					
Contract Award or Events								
Prototype 1	1Q - 4Q	1Q						
Prototype 2	1Q - 4Q	1Q						
Prototype Support		1Q - 4Q	1Q-3Q					
Testing								
TEMP / ISP	2Q - 4Q	1Q - 2Q						
KTR	2Q - 4Q							
GQT	4Q							
TRR	4Q							
JITC		2Q-4Q	1Q - 3Q					
Development								
SVR	4Q	1Q						
Documentation								
IA	3Q							

EXHIBIT R4, Schedule Profile																																
																															DATE: May 2009	
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5					**PROGRAM ELEMENT NUMBER AND NAME** 0604218N Air Ocean Equipment Engineering												**PROJECT NUMBER AND NAME** 2345 Fleet METOC Equipment - Program: Naval Integrated Tactical Environmental System Next Generation (NITES-Next)																	
Fiscal Year	2008				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	3	4	1	2	3	4
Infrastructure Engineering & Development					Arch/Design Engineering																											
Development and Test (DT&E)of Netcentric Enterprise Hardware Solutions in NITES-Next							DT&E																									

Exhibit R-4a, Schedule Detail					**DATE:** May 2009			
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5				**PROJECT NUMBER AND NAME** 2345 Fleet METOC Equipment - Program: Naval Integrated Tactical Environmental System Next Generation (NITES-Next)				
Schedule Profile	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
Infrastructure Engineering & Development		2Q - 4Q						
Development and Test (DT&E) of Netcentric Enterprise Hardware Solutions in NITES-Next								
DT&E		3Q - 4Q	1Q - 4Q					
Net-Centric METOC Integration		4Q	1Q - 4Q					
SOA Infrastructure Integration		4Q	1Q - 4Q					

EXHIBIT R4, Schedule Profile

DATE: May 2009

APPROPRIATION/BUDGET ACTIVITY

RDT&E, N / BA 5

PROGRAM ELEMENT NUMBER AND NAME

0604218N Air Ocean Equipment Engineering

PROJECT NUMBER AND NAME

2345 Fleet METOC Equipment - Program: Environmental Satellite Receiver Processor (ESRP)

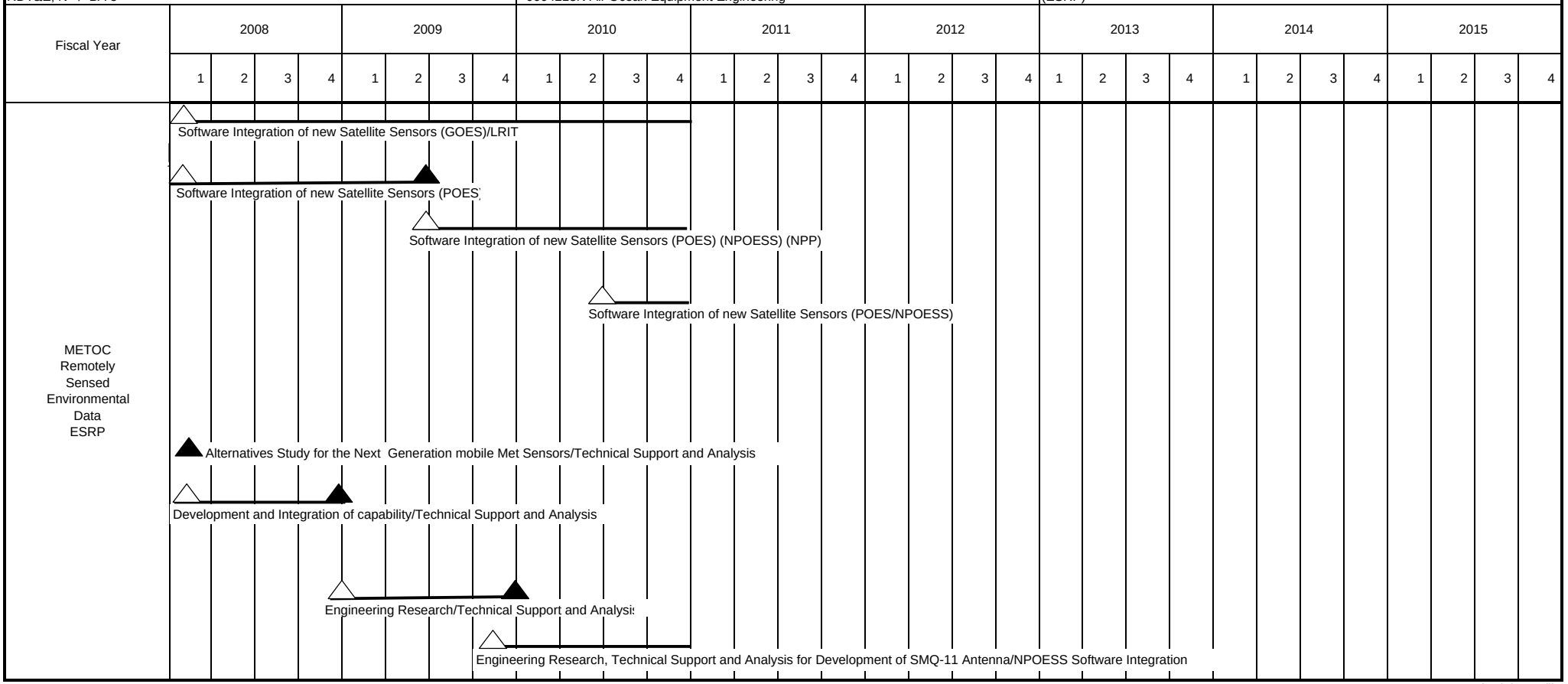

EXHIBIT R4, Schedule Profile

Exhibit R-4a, Schedule Detail					**DATE:** May 2009			
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5				**PROJECT NUMBER AND NAME** 2345 Fleet METOC Equipment - Program: Environmental Satellite Receiver				
Schedule Profile	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
METOC Remotely Sensed Environmental Data ESRP								
Software Integration of new Satellite Sensors (GOES)/LRIT	1Q - 4Q	1Q - 4Q	1Q - 4Q					
Software Integration of new Satellite Sensors (POES)	1Q - 4Q	1Q - 2Q						
Software Integration of new Satellite Sensors (POES) (NPOESS) (NPP)		3Q - 4Q	1Q - 4Q					
Software Integration of new Satellite Sensors (POES/NPOESS)			3Q - 4Q					
Alternatives Study for the Next Generation mobile Met Sensors/Technical Support and Analysis	1Q							
Development and Integration of capability/Technical Support and Analysis	1Q - 4Q	1Q						
Engineering Research/Technical Support and Analysis		1Q - 4Q						
Engineering Research, Technical Support and Analysis for Development of SMQ-11 Antenna/NPOESS Software Integration		4Q	1Q - 4Q					

EXHIBIT R-2a, RDT&E Project Justification						DATE: May 2009		
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5					PROJECT NUMBER AND NAME 2346 METOC Sensor Engineering			
COST ($ in Millions)	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
Project Cost	**1.502**	**1.667**	**2.658**					
RDT&E Articles Qty								

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This project provides for the engineering and manufacturing development of specialized, high resolution instrumentation systems and measurement capabilities for obtaining near real-time, in-situ meteorological and oceanographic (METOC) data in hostile, remote, and denied areas. The project's objectives are to engineer near-term future mission sensing capabilities that are intended to survive the harsh littoral and deep-strike environments and also to meet demanding requirements for timeliness and accuracy. Engineering is performed within this project to ensure that air and safety certification for deployment from fleet aircraft or ships is met and that the proper data formats are engineered for electronic communications transmissions, human interface displays, and inputs to predictive models.

Funding increase in FY10 reflects the increased technique & deployment developmental efforts in support of the Unmanned Aerial Vehicle (UAV) automated Meteorological and Oceanographic (METOC) sensors project.

EXHIBIT R-2a, RDT&E Project Justification	DATE: May 2009
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5	PROJECT NUMBER AND NAME 2346 METOC Sensor Engineering

(U) B. Accomplishments/Planned Program

Meteorological and Oceanographic (METOC) Future Mission Capabilities (FMC)	FY 08	FY 09	FY 10	FY 11
Accomplishments/Effort/Subtotal Cost	1.313	1.436	2.434	
RDT&E Articles Quantity				

FY08 - Developed Architecture and documented UAV Meteorological and Oceanographic sensors using evolving technologies. Proceeded with verification and validation tests of air-deployed micro-sensors and delivered Test Report. Extended strategy definition on network integration studies for insitu environmental sensor systems. Upgraded Navy buoys and expanded capabilities to acquired hydrodynamic characteristics in the littoral for production center use. Developed follow-on tactical through-the-sensor oceanographic and acoustic data collection system engineering plans.

FY09 - Continue system development and demonstration of METOC manned, unmanned and automated sensors (to include integration of environmental sensors into a larger environmental sensing strategy) Continue the development of advanced sensor system support technologies and techniques for sensor deployment, data processing and performance metrics to optimize sensor performance.

FY10 - Continue system development and demonstration of METOC manned, unmanned and automated sensors (to include integration of environmental sensors into a larger environmental sensing strategy) Continue the development of advanced sensor system support technologies and techniques for sensor deployment, data processing and performance metrics to optimize sensor performance.
Funding increase reflects increased technique & deployment developmental efforts in support of the Unmanned Aerial Vehicle (UAV) automated Meteorological and Oceanographic (METOC) sensors project.

EXHIBIT R-2a, RDT&E Project Justification		DATE: May 2009
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5	PROJECT NUMBER AND NAME 2346 METOC Sensor Engineering	

(U) B. Accomplishments/Planned Program

Tactical Oceanographic Capabilities / UnderSea Warfare (TOC/USW)	FY 08	FY 09	FY 10	FY 11
Accomplishments/Effort/Subtotal Cost	0.189	0.231	0.224	
RDT&E Articles Quantity				

FY08 - Upgraded Navy buoys and expanded capabilities to acquired hydrodynamic characteristics in the littoral for production center use. Modified existing Naval Oceanographic Office acoustic and oceanographic data collection buoys to allow them to collect geo-acoustic and seabed properties via covert, passive methods and geo-acoustic inversion techniques. Developed follow-on tactical through-the-sensor oceanographic and acoustic data collection system engineering plans.

FY09 - Conduct Verification and Validation tests on insitu oceanographic and acoustic buoys. Deliver sensor upgrade for prototype acoustic and oceanographic data collection buoy to expand geoacousti data collection to active methods. Continue design of an end-to-end ASW Reconstruction and Analysis (R&A) System Architecture. Test buoy at sea and deliver report. Continue modification of existing Naval Oceanographic Office acoustic and oceanographic data collection buoys to allow them to collect geo-acoustic seabed properties via covert, passive methods and geoacoustic inversion techniques tc include SESSS and SRFLOS modules. Efforts formerly located in "Unmanned Aerial Vehicle METOC Sensors/Sensors/Observing Systems."

FY10 - Continuation of FY09 efforts. Expand data buoy collection capabilities to other environmental parameters to include ocean volume scattering and directional ambient noise. Continue development of ASW performance assessment tools, which include the following efforts: acoustic uncertainty parameterization and evolving active and passive acoustic sensors. Expand capabilities and increase access speed of acoustic surface scattering and loss modules. Begin integration of loss and scattering algorithm software.

EXHIBIT R-2a, RDT&E Project Justification		DATE: May 2009
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5	**PROGRAM ELEMENT NUMBER AND NAME** 0604218N Air Ocean Equipment Engineering	**PROJECT NUMBER AND NAME** 2346 METOC Sensor Engineering

(U) C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name

Not applicable

Related RDT&E: PE 0603207N, Air/Ocean Tactical Applications

(U) D. ACQUISITION STRATEGY:

Acquisition and contracting strategies are to support engineering and manufacturing development of specialized, high resolution instrumentation systems and measurement techniques for obtaining near real-time in-situ meteorological and oceanographic (METOC) data in denied or remote areas by providing funds to NAVAIR and miscellaneous contractors, with management oversight by the Program Executive Officer for Command, Control, Communications, Computers and Intelligence (PEO C4I).

(U) E. MAJOR PERFORMERS:

N/A

(U). F. METRICS:

Earned Value Management (EVM) is used for metrics reporting and risk management.

Exhibit R-3 Cost Analysis (page 1)										DATE: May 2009		
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5			PROGRAM ELEMENT 0604218N Air Ocean Equipment Engineering					PROJECT NUMBER AND NAME 2346 METOC Sensor Engineering				
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 09 Cost	FY 09 Award Date	FY 10 Cost	FY 10 Award Date	FY 11 Cost	FY 11 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Product Development												
	WX	NRL	2.189	0.572	N/A	1.589	N/A					
	NA	MISC	9.675	0.450	N/A	0.450	N/A					
	CP	MISC		0.645	N/A	0.619	N/A					
Subtotal Product Development			11.864	1.667	N/A	2.658	N/A					
Remarks:												
Support Costs												
Subtotal Support Costs			0.000	0.000	N/A	0.000	N/A					
Remarks:												

Exhibit R-3 Cost Analysis (page 2)										DATE: May 2009		
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5			PROGRAM ELEMENT 0604218N Air Ocean Equipment Engineering					PROJECT NUMBER AND NAME 2346 METOC Sensor Engineering				
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 09 Cost	FY 09 Award Date	FY 10 Cost	FY 10 Award Date	FY 11 Cost	FY 11 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Test & Evaluation												
Subtotal Test & Evaluation			0.000	0.000		0.000						
Remarks:												
Management Services												
Subtotal Management Services			0.000	0.000		0.000						
Remarks:												
Total Cost			11.864	1.667	N/A	2.658	N/A					

EXHIBIT R4, Schedule Profile | **DATE:** May 2009

APPROPRIATION/BUDGET ACTIVITY	**PROGRAM ELEMENT NUMBER AND NAME**	**PROJECT NUMBER AND NAME**
RDT&E, N / BA-5	0604218N Air Ocean Equipment Engineering	2346 METOC Sensor Engineering - Program: Meteorological and Oceanographic (METOC) Future Mission Capabilities (FMC)

Fiscal Year	2008				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	3	4	1	2	3	4
Atmospheric Sensors	Helicopter Temperature & Relative Humidity →																															
	Atmospheric Microsensors/Expendables →																															
Oceanographic Sensors	Wave & current Buoy →																															
	Oceanographic Sensing Systems/Microsensors/Expendables →																															

EXHIBIT R4, Schedule Profile

Exhibit R-4a, Schedule Detail					**DATE:** May 2009			
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5				**PROJECT NUMBER AND NAME** 2346 METOC Sensor Engineering - Program: Meteorological and Oceanographic (METOC) Future Mission Capabilities (FMC)				
Schedule Profile	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
Atmospheric Sensors								
Helicopter Temperature & Humidity	1Q - 4Q	1Q - 4Q	1Q - 2Q					
Atmospheric Microsensors	1Q - 4Q	1Q - 4Q	1Q - 4Q					
Oceanographic Sensors								
Wave Current & Buoy	1Q - 4Q	1Q - 4Q						
Ocean Microsensors	1Q - 4Q	1Q - 4Q	1Q - 4Q					

Exhibit R-4a, Schedule Detail

EXHIBIT R4, Schedule Profile																																DATE: May 2009
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5					PROGRAM ELEMENT NUMBER AND NAME 0604218N Air Ocean Equipment Engineering																	PROJECT NUMBER AND NAME 2346 METOC Sensor Engineering - Program: Tactical Oceanographic Capabilities / UnderSea Warfare (TOC/USW)													
Fiscal Year	2008				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	3	4	1	2	3	4
Acoustic and Oceanographic Data Collection Buoys			Buoy Sea Test					Follow-on Tactical TTS Demo																								
ASW Performance Assessment								Assessment Tool Delivery																								

EXHIBIT R4, Schedule Profile

Exhibit R-4a, Schedule Detail					**DATE:** May 2009			
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5				**PROJECT NUMBER AND NAME** 2346 METOC Sensor Engineering - Program: Tactical Oceanographic Capabilities / UnderSea Warfare (TOC/USW)				
Schedule Profile	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
Acoustic and Oceanographic Data Collection Buoys	**1Q - 4Q**	**1Q - 4Q**	**1Q - 4Q**					
Buoy Sea Test	3Q							
Follow-on Tactical TTS Demo		4Q						
NEXGEN Acoustic Buoy Development								
Bioacoustic Capability V&V								
NEXGEN Acoustic Buoy At Sea Test								
ASW Performance Assessment		**1Q - 4Q**	**1Q - 4Q**					
Assessment Tool Delivery		3Q						

Exhibit R-4a, Schedule Detail