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Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Navy DATE: April 2013

APPROPRIATION/BUDGET ACTIVITY 1319: Research, Development, Test & Evaluation, Navy BA 5: System Development & Demonstration (SDD)	R-1 ITEM NOMENCLATURE PE 0604777N: Navigation/Id System
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COST (\$ in Millions)	All Prior Years	FY 2012	FY 2013 [#]	FY 2014 Base	FY 2014 OCO ^{##}	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
Total Program Element	1,178.276	38.389	47.764	51.430	-	51.430	35.242	34.969	35.513	33.844	Continuing	Continuing
0253: Nav & Electro-Optical Supt	49.835	5.826	7.527	12.861	-	12.861	7.650	7.775	7.920	8.029	Continuing	Continuing
0676: Improve ID Development	24.343	1.789	2.335	2.356	-	2.356	2.295	2.292	2.431	2.462	Continuing	Continuing
0921: NAVSTAR GPS Equipment	963.242	19.518	19.652	16.106	-	16.106	20.767	20.963	21.417	21.329	Continuing	Continuing
1253: Combat Ident System	140.856	11.256	18.250	20.107	-	20.107	4.530	3.939	3.745	2.024	Continuing	Continuing

[#] FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

^{##} The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

Reliable and secure navigation and positive identification (ID) systems are essential elements of battle management in the naval environment. The Photonics Imaging System (0253) is a non-hull penetrating replacement for existing optical periscopes. The Photonics Imaging System exploits a wide portion of the electro-magnetic spectrum utilizing advanced Electro-Optic/thermal imaging, and communications intercept/Electronic Warfare Support (ES). The Integrated Submarine Imaging System (ISIS) (0253) is a back fit system to integrate all imaging capabilities on existing submarine classes. The Combat Identification System (CIS) project (1253) for Mark XIIA, and Improved Identification Development (0676) for AN/UPX-29(V), covers the Mark XIIA Mode 5 upgrade to the existing Mark XII family of systems that is Joint and North Atlantic Treaty Organization (NATO) interoperable. Per OSD direction, NATO participation is encouraged and performance data is exchanged to ensure the opportunity for interoperability with allied identification systems is maximized. In addition to distinguishing friend from foe for weapons employment, the Navy requires secure, jam resistant Identification Friend or Foe (IFF) systems for battle group air defense management and air traffic control. Identification is multifaceted and includes information received from several sensors (both cooperative and non-cooperative systems).

NAVSTAR Global Positioning System (GPS) project (0921) is a space-based positioning, navigation and timing (PNT) system that provides authorized users with secure, worldwide, all weather, three dimensional position, velocity and precise time data. Navigation Sensor System Interface (NAVSSI) is a system that provides an integrated navigation message structure for network distribution to support combat, command and control, information and other mission critical capabilities. Navy Air and Sea Navigation Warfare (NAVWAR) are major elements of the GPS program. NAVWAR's mission is to provide continued access to GPS information in a denied environment. NAVWAR accomplishes this through the use of enhanced user equipment (UE). GPS modernization addresses the Navy's future integration of GPS Joint Program Office (JPO) Modernized User Equipment (MUE) products being developed that will enable the use of new signals in space. The GPS - based Positioning, Navigation, and Timing (PNT) Service (GPNTS) system is being developed to replace stand-alone AN/WRN-6 receivers and integrated NAVSSI systems. Additionally, future capability will migrate toward a Common Computing Environment (CCE) such as Consolidated Afloat Networks Enterprise Services (CANES).

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APPROPRIATION/BUDGET ACTIVITY		R-1 ITEM NOMENCLATURE				
1319: Research, Development, Test & Evaluation, Navy		PE 0604777N: Navigation/Id System				
BA 5: System Development & Demonstration (SDD)						
JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under SYSTEM DEVELOPMENT AND DEMONSTRATION because it includes those projects that have passed Milestone B approval and are conducting engineering and manufacturing development tasks aimed at meeting validated requirement prior to full-rate production decision.						
B. Program Change Summary (\$ in Millions)		FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total
Previous President's Budget		39.331	47.764	50.259	-	50.259
Current President's Budget		38.389	47.764	51.430	-	51.430
Total Adjustments		-0.942	0.000	1.171	-	1.171
• Congressional General Reductions		-	-			
• Congressional Directed Reductions		-	-			
• Congressional Rescissions		-	-			
• Congressional Adds		-	-			
• Congressional Directed Transfers		-	-			
• Reprogrammings		-0.013	0.000			
• SBIR/STTR Transfer		-0.929	0.000			
• Program Adjustments		0.000	0.000	1.745	-	1.745
• Rate/Misc Adjustments		0.000	0.000	-0.574	-	-0.574
Change Summary Explanation						
Technical: Not applicable.						
Schedule: Not applicable.						

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Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy									DATE: April 2013			
APPROPRIATION/BUDGET ACTIVITY 1319: Research, Development, Test & Evaluation, Navy BA 5: System Development & Demonstration (SDD)					R-1 ITEM NOMENCLATURE PE 0604777N: Navigation/Id System				PROJECT 0253: Nav & Electro-Optical Supt			
COST (\$ in Millions)	All Prior Years	FY 2012	FY 2013 [#]	FY 2014 Base	FY 2014 OCO ^{##}	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
0253: Nav & Electro-Optical Supt	49.835	5.826	7.527	12.861	-	12.861	7.650	7.775	7.920	8.029	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0		0	0	0	0	0		
# FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012												
## The FY 2014 OCO Request will be submitted at a later date												
A. Mission Description and Budget Item Justification												
The Navigation and Electro-Optical (E-O) Support program develops Submarine Electro-Optical and imagery systems and equipment that will improve submarine imaging capability in the areas of: ship safety, Intelligence, Surveillance and Reconnaissance (ISR), and tactical control (contact management in the littorals). The Photonics Mast mounted on the Universal Modular Mast, will provide imaging capability for the SSGN and VIRGINIA Class submarines. The Photonics Mast design exploits a wide portion of the electro-magnetic spectrum through advanced E-O and thermal imaging and Electronic Warfare Support (ES)/Communications intercept. It will provide significant improvements in submarine stealth and Infra-Red (IR) imaging capability. The non-hull penetrating design provides freedom in ship design and space savings for SSGN and VIRGINIA Class and future submarines designs. Specific efforts include: Digital Sensor development and integration and Low Profile Photonics Mast (LPPM) design studies.												
The Department of the Navy established the Integrated Submarine Imaging System (ISIS) to rapidly field the Type 18 Periscope, Periscope Acquisition, Tracking, and Ranging with Improved Observation Techniques (PATRIOT) Rangefinder, Type 8 Mod 4 IR Periscope systems, and integrate existing periscope imagery systems into a single system for installation on board SSN 688 Class and SEAWOLF Class submarines. The ISIS baseline now includes the Type 18 Periscope, PATRIOT Rangefinder, Type 8 Mod 4 IR Periscope, and the Photonics Mast onboard VIRGINIA and SSGN Class Submarines. ISIS supports high intensity operations in the littorals and provides the submarine force with the tactical imaging systems necessary to safely and effectively employ its surveillance and weapons capabilities. An ISIS capability development document (CDD) was approved 22 Dec, 2011. The CDD is used to fully integrate the ISIS program of record into the submarines force rapid insertion technology process and to incorporate Fleet-endorsed requirements such as LPPM that are not levied by the ISIS Operational Requirements Document. The AN/BVS-1 Photonics Mast Program (PMP) provides for the development and acquisition of a non-hull penetrating submarine electronic imaging system for Blocks I and II VIRGINIA Class submarines. The Integrated Submarine Imaging System (ISIS) provides mission critical, all weather, visual, and electronic search, digital image management, indication, warning, and platform architecture interface capabilities for SSN 688, SSN 21, SSN 774 and SSGN Class submarines.												
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)									FY 2012	FY 2013	FY 2014	
Title: ISIS and Photonics common hardware capabilities development and obsolescence.									0.497	4.945	11.076	
									Articles: 0	0	0	
FY 2012 Accomplishments: Continued ISIS Technical Insertion (TI) development for LOS ANGELES and SEAWOLF Classes.												
FY 2013 Plans:												

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Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013		
APPROPRIATION/BUDGET ACTIVITY 1319: Research, Development, Test & Evaluation, Navy BA 5: System Development & Demonstration (SDD)	R-1 ITEM NOMENCLATURE PE 0604777N: Navigation/Id System	PROJECT 0253: Nav & Electro-Optical Supt		
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2012	FY 2013	FY 2014
ISIS Technical Insertion (TI) development for LOS ANGELES, SEAWOLF and VIRGINIA Classes. FY 2014 Plans: ISIS Technical Insertion (TI) development for LOS ANGELES, SEAWOLF, SSGN and VA Classes including LPPM.				
Title: Low Light Level TV development, digital sensor development and integration and displays. Articles:		0.241 0	0.000	0.000
FY 2012 Accomplishments: Completed display upgrades.				
Title: Imaging Systems Test Efforts. Articles:		0.371 0	0.508 0	1.035 0
FY 2012 Accomplishments: ISIS TI-12 Engineering Development Model (EDM) Testing.				
FY 2013 Plans: TI-12 Operational Testing (OT) and Dockside Testing (DT).				
FY 2014 Plans: TI-14 EDM Testing.				
Title: Low Profile Photonics Mast Articles:		4.562 0	1.500 0	0.750 0
FY 2012 Accomplishments: Development of 1 Engineering Design Model/Low Profile Photonics Mast (EDM/LPPM) asset; Non Recurring Engineering (NRE) for LPPM Baseline				
FY 2013 Plans: Continued NRE for LPPM Baseline Design				
FY 2014 Plans: Completion of LPPM Baseline Design				
Title: PATRIOT Radar Range Finder Development for Photonics for SSGN and VIRGINIA Class Submarine. Articles:		0.155 0	0.574 0	0.000
FY 2012 Accomplishments: Continued upgrade of the Type 18 Periscope Automated Rangefinder Software.				

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APPROPRIATION/BUDGET ACTIVITY 1319: <i>Research, Development, Test & Evaluation, Navy</i> BA 5: <i>System Development & Demonstration (SDD)</i>				R-1 ITEM NOMENCLATURE PE 0604777N: <i>Navigation/Id System</i>				PROJECT 0253: <i>Nav & Electro-Optical Supt</i>			

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)				FY 2012	FY 2013	FY 2014
Continued integration of the ISIS TI-10 PATRIOT Rangefinder and Software Development for VIRGINIA and SSGN Classes.						
FY 2013 Plans: Development and integration of PATRIOT Radar Range Finder into ISIS Technical Insertion kit design for TI-12.						
Accomplishments/Planned Programs Subtotals				5.826	7.527	12.861

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
• SCN/201300: <i>Photonics Mast</i>	36.250	36.975	18.634		18.634	38.008	38.773	39.560	40.363	Continuing	Continuing
• OPN/0831: <i>Sub Periscopes & Imaging Equip.</i>	64.033	53.809	52.515		52.515	78.001	66.245	49.111	61.450	Continuing	Continuing
• RDT&E/0604558N: <i>VIRGINIA Class Design Development</i>	3.000	3.200	3.500		3.500	4.500	3.000	3.000	3.051	Continuing	Continuing
Remarks											
D. Acquisition Strategy											
The Acquisition Strategy for AN/BVS-1 Photonics Mast Program (PMP) is dated 24 Sept 2001. The PMP provides for the development and acquisition of a non-hull penetrating submarine electronic imaging system for VIRGINIA Class submarines. The Acquisition Strategy for Integrated Submarine Imaging System (ISIS) is dated 07 Jul 2003. The ISIS will provide mission critical, all weather, visual, and electronic search, digital image management, indication, warning, and platform architecture interface capabilities for SSN 688, SSN 21, SSN 774 and SSGN class submarines.											
E. Performance Metrics											
Successful application of system engineering processes. Design and development of improvements. Site acceptance of product improvements with no Priority 1 or 2 problem reports. Completion of 2 upgrades per year. Acceptance of product improvements with no Priority 1 or 2 problem reports.											
The RDD program goal is to respond to urgent operational needs within 30 days and provide for rapid development and fielding of prototype solutions within 270 days.											

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy												DATE: April 2013			
APPROPRIATION/BUDGET ACTIVITY						R-1 ITEM NOMENCLATURE				PROJECT					
1319: Research, Development, Test & Evaluation, Navy BA 5: System Development & Demonstration (SDD)						PE 0604777N: Navigation/Id System				0253: Nav & Electro-Optical Supt					
Product Development (\$ in Millions)				FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Hardware Development	WR	NUWC:Newport, RI	11.034	0.000		0.533	Oct 2012	0.668	Oct 2013	-		0.668	Continuing	Continuing	Continuing
Software Development	C/CPIF	Lockheed Martin:Manassas, VA	11.203	0.044	Apr 2012	1.856	Mar 2013	5.952	Mar 2014	-		5.952	Continuing	Continuing	Continuing
Systems Engineering	WR	NUWC:Newport, RI	12.774	0.452	Oct 2011	0.684	Oct 2012	1.900	Oct 2013	-		1.900	Continuing	Continuing	Continuing
Hardware Development	C/CPIF	Lockheed Martin:Manassas, VA	1.956	0.000		2.422	Mar 2013	2.512	Mar 2014	-		2.512	Continuing	Continuing	Continuing
Hardware Development	C/CPFF	3 Phoenix:Chantilly, VA	0.000	4.562	Jul 2012	1.500	Nov 2012	0.750	Mar 2014	-		0.750	Continuing	Continuing	Continuing
Miscellaneous	WR	NUWC:Newport, RI	3.589	0.000		0.000		0.000		-		0.000	0.000	3.589	
Systems Engineering	WR	NAWC:China Lake, CA	0.000	0.226	Nov 2012	0.000		0.000		-		0.000	0.000	0.226	
Subtotal			40.556	5.284		6.995		11.782		0.000		11.782			
Support (\$ in Millions)				FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	C/CPAF	AT&T:Vienna VA	3.521	0.140	Nov 2011	0.000		0.000		-		0.000	0.000	3.661	
Subtotal			3.521	0.140		0.000		0.000		0.000		0.000	0.000	3.661	
Test and Evaluation (\$ in Millions)				FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Development Test & Evaluation	WR	NUWC:Newport, RI	5.455	0.212	Oct 2011	0.215	Oct 2012	0.887	Oct 2013	-		0.887	Continuing	Continuing	Continuing
Development Test & Evaluation	WR	COMOPTEVFOR:Norfolk, VA	0.000	0.136	Oct 2011	0.268	Oct 2012	0.148	Oct 2013	-		0.148	Continuing	Continuing	Continuing
Subtotal			5.455	0.348		0.483		1.035		0.000		1.035			

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy												DATE: April 2013		
APPROPRIATION/BUDGET ACTIVITY 1319: <i>Research, Development, Test & Evaluation, Navy</i> BA 5: <i>System Development & Demonstration (SDD)</i>						R-1 ITEM NOMENCLATURE PE 0604777N: <i>Navigation/Id System</i>				PROJECT 0253: <i>Nav & Electro-Optical Supt</i>				

Management Services (\$ in Millions)				FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Travel	WR	NAVSEA:Washington, DC	0.303	0.054	Oct 2011	0.049	Oct 2012	0.044	Oct 2013	-		0.044	Continuing	Continuing	Continuing
Subtotal			0.303	0.054		0.049		0.044		0.000		0.044			

	All Prior Years	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	49.835	5.826	7.527	12.861	0.000	12.861			

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy														DATE: April 2013																											
APPROPRIATION/BUDGET ACTIVITY 1319: Research, Development, Test & Evaluation, Navy BA 5: System Development & Demonstration (SDD)														R-1 ITEM NOMENCLATURE PE 0604777N: Navigation/Id System														PROJECT 0253: Nav & Electro-Optical Supt													
Nav & Electro-Optical Supt	FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017				FY 2018																
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q													
Major Milestones																																									
ISIS Increment I Capability Insertion	TI-10 ▲		TI-12 ▲									TI-14 ▲																													
ISIS Technology Insertion							TI-12 ▲				TI-14 ▲									TI-16 ▲																					
Developments																																									
ISIS Development	TI-12								TI-14								TI-16								TI-18																
LPPM Development																																									
Test & Evaluation																																									
ISIS			TI-12 EDM ▲			TI-10 OT ▲	TI-12 OT ▲				TI-14 EDM ▲				TI-14 OT ▲		TI-16 EDM ▲				TI-16 OT ▲				TI-18 EDM ▲																
2014PB - 0604777N - 0253																																									

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Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: <i>Research, Development, Test & Evaluation, Navy</i> BA 5: <i>System Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604777N: <i>Navigation/Id System</i>	PROJECT 0253: <i>Nav & Electro-Optical Supt</i>	

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Nav & Electro-Optical Supt</i>				
Major Milestones: ISIS Increment I Capability Insertion: ISIS Increment I Capability Insertion Fielding (TI-10)	1	2012	1	2012
Major Milestones: ISIS Increment I Capability Insertion: ISIS Increment I Capability Insertion Fielding (TI-12)	3	2012	3	2012
Major Milestones: ISIS Increment I Capability Insertion: ISIS Increment I Capability Insertion Fielding (TI-14)	4	2014	4	2014
Major Milestones: ISIS Technology Insertion: ISIS Technology Insertion Fielding (TI-12)	3	2013	3	2013
Major Milestones: ISIS Technology Insertion: ISIS Technology Insertion Fielding (TI-14)	3	2014	3	2014
Major Milestones: ISIS Technology Insertion: ISIS Technology Insertion Fielding (TI-16)	2	2017	2	2017
Developments: ISIS Development: Development: ISIS TI-12	1	2012	1	2013
Developments: ISIS Development: Development: ISIS TI-14	4	2013	1	2015
Developments: ISIS Development: Development: ISIS TI-16	4	2015	1	2017
Developments: ISIS Development: Developments: ISIS TI-18	4	2017	4	2018
Developments: LPPM Development: LPPM Development	3	2012	1	2015
Test & Evaluation: ISIS: Test & Evaluation - ISIS TI-10 OT	2	2013	2	2013
Test & Evaluation: ISIS: Test & Evaluation - ISIS TI-12 EDM	3	2012	3	2012
Test & Evaluation: ISIS: Test & Evaluation - ISIS TI-12 OT	3	2013	3	2013
Test & Evaluation: ISIS: ISIS Test & Evaluation - TI-14 EDM	3	2014	3	2014
Test & Evaluation: ISIS: Test & Evaluation - ISIS TI-14 OT	4	2015	4	2015
Test & Evaluation: ISIS: Test & Evaluation - ISIS TI-16 EDM	3	2016	3	2016

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Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy			DATE: April 2013	
APPROPRIATION/BUDGET ACTIVITY 1319: Research, Development, Test & Evaluation, Navy BA 5: System Development & Demonstration (SDD)		R-1 ITEM NOMENCLATURE PE 0604777N: Navigation/Id System		PROJECT 0253: Nav & Electro-Optical Supt
		Start		End
Events by Sub Project		Quarter	Year	Quarter Year
Test & Evaluation: ISIS: Test & Evaluation - ISIS TI-16 OT		3	2017	3 2017
Test & Evaluation: ISIS: Test & Evaluation - ISIS TI-18 EDM		3	2018	3 2018

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APPROPRIATION/BUDGET ACTIVITY 1319: Research, Development, Test & Evaluation, Navy BA 5: System Development & Demonstration (SDD)					R-1 ITEM NOMENCLATURE PE 0604777N: Navigation/Id System				PROJECT 0676: Improve ID Development								
COST (\$ in Millions)	All Prior Years	FY 2012	FY 2013 [#]	FY 2014 Base	FY 2014 OCO ^{##}	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost					
0676: Improve ID Development	24.343	1.789	2.335	2.356	-	2.356	2.295	2.292	2.431	2.462	Continuing	Continuing					
Quantity of RDT&E Articles	0	0	0	0		0	0	0	0	0							
# FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012																	
## The FY 2014 OCO Request will be submitted at a later date																	
A. Mission Description and Budget Item Justification																	
Reliable and secure navigation and positive identification (ID) systems are essential elements of battle management in the naval environment. In addition to providing platform identification for weapons employment, the Navy requires secure, jam resistant Identification Friend or Foe (IFF) systems for battle group air defense management and air traffic control. The Improved ID Development project addresses the Mark XIIA Mode 5 upgrade to the existing AN/UPX-29(V) Mark XII family of systems that is Joint and North Atlantic Treaty Organization (NATO) interoperable. This exhibit also addresses the AN/UPX-29(V) antenna, the OE-120/UPX.																	
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)									FY 2012	FY 2013	FY 2014						
Title: AN/UPX-29 (V) - OE-120/UPX Antenna Replacement Articles: Description: Engineering and integration development for antenna group OE-120/UPX modernization. Develop design studies and Analysis of Alternitives (AoA), draft specifications, and perform system development and integration efforts. FY 2012 Accomplishments: Finalized the Class 1 Part 1 ECP. FY 2013 Plans: Develop Antenna Group OE-120/UPX system requirements and address obsolescence issues as required. FY 2014 Plans: Address OE-120 obsolescence issues as required. Integration and testing of antenna phase shifter and power supply modules.									1.188	1.373	1.180						
									0	0	0						
Title: Mark XIIA Mode 5 Improvement for AN/UPX-29(V)									0.421	0.814	1.022						
Articles: Description: Engineering, development, and integration of Mark XIIA Improvements to the AN/UPX-29 (V). Correct deficiencies from Integrated Test and Operational Test (IT - OT) and baseline software and documentation. Funds development and integration of Mark XIIA Improvement to the AN/UPX-29 (V) system on CG 47, DDG 51, LHD 1, LPD 17 and CV/CVN class ships. Provides core Integrated Logistics Support (ILS) documentation; formalizes hardware/software configuration; finalizes technical/ design data, and resolves testing anomalies.									0	0	0						

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)							FY 2012		FY 2013		FY 2014	
FY 2012 Accomplishments: Continued AN/UPX-29(V) integration and interface certification testing with ship baselines. Evaluated and replaced system processors due to obsolescence.												
FY 2013 Plans: Continue AN/UPX-29(V) integration and interface certification testing with ship baselines. Continue evaluating and replacing system processors due to obsolescence.												
FY 2014 Plans: Evaluate software re-host with new system processors against emerging Aegis and Ship Self Defense System combat systems. Support follow-on test and evaluation of Mode 5 capability on new ship classes/flights.												
Title: AN/UPX-29(V) Management Support							0.180		0.148		0.154	
Articles:							0		0		0	
Description: Engineering and Program Management of the AN/UPX 29 (V). Perform system integration efforts.												
FY 2012 Accomplishments: Managed engineering assessments/evaluations/development efforts that provided resolution to engineering investigations and obsolescence issues.												
FY 2013 Plans: Manage engineering assessments/evaluations/development efforts that provide resolution to engineering investigations and obsolescence issues.												
FY 2014 Plans: Manage engineering assessments/evaluations/development efforts that provide resolution to engineering investigations and obsolescence issues.												
Accomplishments/Planned Programs Subtotals							1.789		2.335		2.356	
C. Other Program Funding Summary (\$ in Millions)												
Line Item	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost	
• OPN/2851: Identification Systems	31.470	35.474	38.934		38.934	38.570	35.096	29.038	29.513	Continuing	Continuing	
Remarks												

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APPROPRIATION/BUDGET ACTIVITY 1319: <i>Research, Development, Test & Evaluation, Navy</i> BA 5: <i>System Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604777N: <i>Navigation/Id System</i>	PROJECT 0676: <i>Improve ID Development</i>
<u>D. Acquisition Strategy</u> The acquisition strategy is to develop Mode 5 Engineering Change Proposals for modern Mark XII IFF equipment and integrate into all Navy Combat Weapons systems platforms and augment the Navy's Cooperative Identification Capability to include Mode 5.		
<u>E. Performance Metrics</u> Achieve Full Rate Production (FRP) Decision and Initial Operational Capability.		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy												DATE: April 2013			
APPROPRIATION/BUDGET ACTIVITY 1319: Research, Development, Test & Evaluation, Navy BA 5: System Development & Demonstration (SDD)						R-1 ITEM NOMENCLATURE PE 0604777N: Navigation/Id System				PROJECT 0676: Improve ID Development					
Product Development (\$ in Millions)				FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary Hardware Development	WR	NAWCAD:St Inigoes, MD	3.985	1.093	Nov 2011	1.140	Nov 2012	1.180	Nov 2013	-		1.180	Continuing	Continuing	Continuing
Ship Integration	WR	NAWCAD:St Inigoes, MD	2.077	0.075	Nov 2011	0.152	Nov 2012	0.158	Nov 2013	-		0.158	Continuing	Continuing	Continuing
Systems Engineering	WR	NAWCAD:St Inigoes, MD	5.002	0.147	Nov 2011	0.410	Nov 2012	0.426	Nov 2013	-		0.426	Continuing	Continuing	Continuing
Subtotal			11.064	1.315		1.702		1.764		0.000		1.764			
Support (\$ in Millions)				FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Configuration Management	WR	NAWCAD:St Inigoes, MD	0.169	0.000		0.000		0.000		-		0.000	0.000	0.169	
ILS	WR	NAWCAD:St Inigoes, MD	2.371	0.056	Nov 2011	0.059	Nov 2012	0.061	Nov 2013	-		0.061	Continuing	Continuing	Continuing
Software Development	WR	NAWCAD:St Inigoes, MD	5.081	0.093	Nov 2011	0.193	Nov 2012	0.168	Nov 2013	-		0.168	Continuing	Continuing	Continuing
Technical Data	WR	NAWCAD:St Inigoes, MD	1.247	0.185	Nov 2011	0.233	Nov 2012	0.209	Nov 2013	-		0.209	Continuing	Continuing	Continuing
Training	WR	NAWCAD:St Inigoes, MD	0.200	0.000		0.000		0.000		-		0.000	0.000	0.200	
Subtotal			9.068	0.334		0.485		0.438		0.000		0.438			
Test and Evaluation (\$ in Millions)				FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	NAWCAD:St Inigoes, MD	0.500	0.000		0.000		0.000		-		0.000	0.000	0.500	

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy												DATE: April 2013			
APPROPRIATION/BUDGET ACTIVITY 1319: Research, Development, Test & Evaluation, Navy BA 5: System Development & Demonstration (SDD)						R-1 ITEM NOMENCLATURE PE 0604777N: Navigation/Id System				PROJECT 0676: Improve ID Development					
Test and Evaluation (\$ in Millions)				FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Operational Test & Evaluation	WR	NAWCAD:St Inigoes, MD	1.328	0.000		0.000		0.000		-		0.000	0.000	1.328	
Test Assets	WR	NAWCAD:St Inigoes, MD	0.731	0.000		0.000		0.000		-		0.000	0.000	0.731	
Subtotal			2.559	0.000		0.000		0.000		0.000		0.000	0.000	2.559	
Management Services (\$ in Millions)				FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	C/CPFF	American Electronics:California, MD	1.408	0.140	Dec 2011	0.148	Nov 2012	0.154	Nov 2013	-		0.154	Continuing	Continuing	Continuing
Engineering Support	WR	NAWCAD:PAX River, MD	0.244	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Subtotal			1.652	0.140		0.148		0.154		0.000		0.154			
			All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			24.343	1.789		2.335		2.356		0.000		2.356			
Remarks															

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PE 0604777N: *Navigation/Id System*
Navy

R-1 Line #126

R-1 ITEM NOMENCLATURE

PE 0604777N: *Navigation/Id System*0676: *Improve ID Development*2014OSD - 0604777N - 0676

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PE 0604777N: *Navigation/Id System*
Navy

R-1 Line #126

R-1 ITEM NOMENCLATURE

PE 0604777N: *Navigation/Id System*0676: *Improve ID Development*

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Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: <i>Research, Development, Test & Evaluation, Navy</i> BA 5: <i>System Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604777N: <i>Navigation/Id System</i>	PROJECT 0676: <i>Improve ID Development</i>	

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Mode 5 Improv Identification Dev				
Acquisition Milestones: Milestones: Mode 5 - Full Rate Production Decision Review (FRPDR)	4	2012	4	2012
Acquisition Milestones: Milestones: IOC	4	2012	4	2012
Acquisition Milestones: Milestones: Mode 5 - Joint IOC	4	2014	4	2014
Test & Evaluation Group: Operational Evaluation: Mode 5 - OT-C2 (IOT&E)	1	2012	1	2012
Test & Evaluation Group: Operational Evaluation: Mode 5 - IOT&E Outbrief	3	2012	3	2012
Test & Evaluation Group: Operational Evaluation: Mode 5 - Follow-on Test and Evaluation	1	2012	4	2018
Production Milestones: Contract Awards: Mode 5 - FRP Contract Award	4	2012	4	2012
Deliveries: Mode 5 - Low-Rate Initial Production Deliveries (DI,CXP) (OPN, APN5, RDTEN)	1	2012	2	2013
Deliveries: Mode 5 - Production Line Insertion	1	2012	4	2017
Deliveries: Mode 5 - Prepare and Evaluate ECPs/SCDs	1	2012	4	2017
Deliveries: Mode 5 - Host Platform Integrations	1	2012	4	2017
Deliveries: Mode 5 - FRP Deliveries	4	2013	4	2017
OE-120/UPX Antenna Improv Identification Dev				
System Development: Reviews: OE-120/UPX Antenna - System Functional Review (SFR)	4	2015	4	2015
System Development: Reviews: OE-120/UPX Antenna - PDR	3	2016	3	2016
System Development: Reviews: Part 1 Engeneering Change Proposal Class 1	1	2012	4	2012

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Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy										DATE: April 2013		
APPROPRIATION/BUDGET ACTIVITY 1319: Research, Development, Test & Evaluation, Navy BA 5: System Development & Demonstration (SDD)					R-1 ITEM NOMENCLATURE PE 0604777N: Navigation/Id System				PROJECT 0921: NAVSTAR GPS Equipment			
COST (\$ in Millions)	All Prior Years	FY 2012	FY 2013 [#]	FY 2014 Base	FY 2014 OCO ^{##}	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
0921: NAVSTAR GPS Equipment	963.242	19.518	19.652	16.106	-	16.106	20.767	20.963	21.417	21.329	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0		0	0	0	0	0		

[#] FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

^{##} The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

NAVSTAR Global Positioning System (GPS) project (0921) is a space-based positioning, navigation, and timing (PNT) system that provides authorized users with secure, worldwide, all weather, three dimensional position, velocity, and precise time data. Research, Development, Testing and Evaluation (RDT&E) funds are used to perform all the non-recurring GPS Surface Ship, Submarine and Aircraft Development, Integration, and Testing efforts. GPS continues to be integrated in all DoD platforms and the development of enhanced GPS is a national security priority.

The Naval Research Advisory Committee (NRAC) GPS Vulnerability Study Panel assessed the Navy's GPS Vulnerabilities and recommended specific actions to resolve serious issues to ensure the continued availability of GPS information in a high risk hostile jamming environment. As a result, the Navy Enhanced GPS User Equipment Operational Requirement Document (ORD) was drafted to address operational requirements. NAVWAR's mission is to provide continued access to GPS information in a denied environment. RDT&E continues to support platform integration requirements, Developmental Test/Operational Test (DT/OT), the Navy's development of a smaller Anti-Jam (AJ) antenna and a conformal low-observable AJ antenna for aircraft with unique requirements, and new technology AJ solutions for submarines.

Two similar but separate ACAT III programs (Air and Sea NAVWAR) have been established and have become the basis for the Navy's Air and Sea Navigation Warfare (NAVWAR) programs. The Sea NAVWAR program is executed in three increments. Increment 1 is GPS Antenna System (GAS-1). Increment 2 is Advanced Digital Antenna Production (ADAP). The purpose of Increments 1 and 2 is to integrate Anti-Jam (AJ) antennas on surface platforms. Increment 3 Submarine Anti-Jam GPS Enhancement (SAGE) will integrate AJ capability on submarines. The Air NAVWAR program is a single increment with GAS-1, ADAP, and other efforts continuing. The Capability Production Document for Sea NAVWAR Increment 2 (12/08) was approved to support the ADAP production and procurement.

The primary GPS shipboard systems fielded on the majority of U.S. Navy ships today include the AN/WRN-6 and the Navigation Sensor System Interface (NAVSSI). These military GPS systems provide precise Position, Navigation, and Time (PNT) data required for many combat, weapons, command, control, communications, navigation, and other systems, as well as providing the time synchronization critical to the network environments.

The Global Position System (GPS)- based Positioning, Navigation, and Timing (PNT) Service (GPNTS system is being developed to replace stand-alone AN/WRN-6 receivers and integrated Navigation Sensor System Interface (NAVSSI) systems. Additionally, future capability will migrate toward a Common Computing Environment (CCE) such as Consolidated Afloat Networks Enterprise Services (CANES).

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Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013		
APPROPRIATION/BUDGET ACTIVITY 1319: <i>Research, Development, Test & Evaluation, Navy</i> BA 5: <i>System Development & Demonstration (SDD)</i>		R-1 ITEM NOMENCLATURE PE 0604777N: <i>Navigation/Id System</i>		PROJECT 0921: <i>NAVSTAR GPS Equipment</i>	
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)			FY 2012	FY 2013	FY 2014
Title: Air Navigation Warfare (NAVWAR)			5.244	2.279	2.086
Articles:			0	0	0
FY 2012 Accomplishments: Received Suitable and effective OT Report on NAVWAR for F/A-18E/F and EA-18G. Received positive Acquisition Decision for F/A-18E/F and EA-18G and completed validation and verification installations on F/A-18F. Participated in Small Antenna System (SAS) development with qualification testing and installation on a MQ-8B Fire Scout platform. Continued integration of NAVWAR on MH-53E and AV-8B and supported forward fit platforms. Initiated NAVWAR integration and installation on EP-3E. Continued GPS Modernization platform impact studies and provided Navy unique requirements to the GPS Directorate. Continued to coordinate GPS Modernization efforts with other programs and DoD services to reduce impacts to platform navigation systems. Performed E-2 timing impact study in coordination with N81. Kept the Fleet apprised of GPS Enterprise Selective Availability Anti-Spoofing Module (SAASM) and Architecture Evolution Plan (AEP) developments and coordinated testing of latest AEP version. Participated in joint NAVWAR Memorandum of Understanding (MOU) initiatives with Canada, United Kingdom and Australia.					
FY 2013 Plans: Continue to assist other air platforms with integration of anti-jam capability to include Unmanned Air Systems (UAS) and weapons. Complete validation and verification installations for all lots of F/A-18E/F and EA-18G receiving NAVWAR. Complete MH-53E and AV-8B installations. Investigate assured PNT options for Naval aircraft. Continue to provide GPS Modernization Navy unique requirements to GPS Directorate. Continue to coordinate GPS Modernization efforts with other programs and DoD services to reduce impacts to platform navigation systems. Continue to keep the Fleet apprised of GPS Enterprise Selective Availability Anti-Spoofing Module (SAASM) and AEP developments. Participate in joint NAVWAR MOU initiatives with Canada, United Kingdom and Australia including cooperative UAS NAVWAR development. Overall program efforts include investigation of emerging technologies through study, development and associated testing for feasibility of program insertion.					
FY 2014 Plans: Continue to assist other air platforms with integration of anti-jam capability to include UAS and weapons. Begin Production installations of NAVWAR in F/A-18F. Continue assured PNT efforts. Continue to provide GPS Modernization Navy unique requirements to GPS Directorate. Continue to coordinate GPS Modernization efforts with other programs and DoD services to reduce impacts to platform navigation systems. Continue to assist the Fleet with GPS Enterprise SAASM and AEP developments. Participate in joint NAVWAR MOU initiatives with Canada, United Kingdom and Australia. Begin assured PNT development. Overall program efforts include investigation of emerging technologies through study, development and associated testing for feasibility of program insertion.					
Title: Sea Navigation Warfare (NAVWAR)			2.915	1.367	1.910
Articles:			0	0	0

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Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013	
APPROPRIATION/BUDGET ACTIVITY 1319: <i>Research, Development, Test & Evaluation, Navy</i> BA 5: <i>System Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604777N: <i>Navigation/Id System</i>	PROJECT 0921: <i>NAVSTAR GPS Equipment</i>	
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2012	FY 2013
<p><i>FY 2012 Accomplishments:</i> Increment 2: Completed preparatory efforts in support of Carrier, Fixed Wing, Aircraft, Nuclear (CVN) Developmental Test (DT) scheduled for first quarter FY13. Completed Guided Missile Cruiser (CG) DT. Increment 3: Completed a Technical Readiness Assessment (TRA) in support of Submarine Anti-Jam GPS Enhancement (SAGE) technology development and began prototype development.</p> <p><i>FY 2013 Plans:</i> Increment 2: Complete CVN DT. Conduct Landing Helicopter (LHD) DT. Increment 3: Continue SAGE prototype development and procure up to four Submarine AJ GPS Enhancement (SAGE) prototypes to support risk reduction, technology maturation, integration, and Developmental Testing (DT) activities. Conduct SAGE DT, performance, and environmental testing. Overall program efforts include investigation of emerging technologies through study, development, and associated testing for feasibility of program insertion.</p> <p><i>FY 2014 Plans:</i> Increment 3: Complete SAGE DT. Begin GPS AJ SAGE efforts in support of SAGE/OE-538 integrated Production Representative Article (PRA) development. Overall program efforts include investigation of emerging technologies through study, development, and associated testing for feasibility of program insertion.</p>			
<p><i>Title:</i> Global Positioning System (GPS) - Based Positioning, Navigation and Timing (PNT) Service (GPNTS)</p> <p align="right"><i>Articles:</i></p> <p><i>FY 2012 Accomplishments:</i> Conducted the System Functional Review (SFR) and the Initial Baseline Review (IBR) with the Contractor. Completed a Preliminary Design Review (PDR) with the Contractor. Provided engineering and technical support to the Contractor, ensuring system design and software development are aligned with the Capabilities Development Document (CDD) and the Technical Requirements Document (TRD). Reviewed all contract deliverables and attended Contractor Engineering, Program Management, Test and Evaluation, and Logistics Integrated Product Team (IPT) meetings. Reported on contract Earned Value Management (EVM) objectives and manage the program's Integrated Master Schedule (IMS) with the Contractor. Updated program acquisition documentation, specifically the Integrated Support Plan, the Cost Analysis Requirements Document (CARD) and the Program Life Cycle Cost Estimate (PLCCE). Identified potential programmatic and design efficiencies to establish the program's first Should-Cost target.</p> <p><i>FY 2013 Plans:</i> Prepare the program for the Critical Design Review (CDR). Brief the Milestone Decision Authority (MDA) on the design review outcomes. Obtain an updated Acquisition Decision Memorandum (ADM) to proceed from CDR to Milestone C. Complete the draft Life Cycle Support Plan (LCSP), Capabilities Production Document (CPD), and Test and Evaluation Master Plan (TEMP)</p>		11.359 0	16.006 0
		12.110 0	

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Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy								DATE: April 2013			
APPROPRIATION/BUDGET ACTIVITY 1319: <i>Research, Development, Test & Evaluation, Navy</i> BA 5: <i>System Development & Demonstration (SDD)</i>					R-1 ITEM NOMENCLATURE PE 0604777N: <i>Navigation/Id System</i>			PROJECT 0921: <i>NAVSTAR GPS Equipment</i>			

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
to support a Milestone C decision. Accredit both Contractor and Government Labs to prepare the program to conduct Integrated Test Events. Track the program's IMS and report EVM metrics as required. Begin updates of all DoD series acquisition statutory and regulatory documentation as required to support a MS C decision. Overall program efforts include investigation of emerging technologies through study, development and associated testing for feasibility of program insertion.			
<i>FY 2014 Plans:</i> Prepare the program for the delivery of the Engineering Development Models (EDMs) and begin lab testing including Independent Verification and Validation (IV&V) test events. Conduct Combat Systems Certification Testing in Dahlgren, VA. Finalize IOT&E platform selection and install preparations. Track the program's IMS and report EVM metrics as required. Finalize updates of all DoD series acquisition statutory and regulatory documentation as required to support a MS C decision. Update the CARD, PLCCE, and Acquisition Program Baseline (APB) for the MS C decision. Overall program efforts include investigation of emerging technologies through study, development and associated testing for feasibility of program insertion.			
Accomplishments/Planned Programs Subtotals	19.518	19.652	16.106

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
• OPN / 2657: <i>NAVSTAR GPS Receivers (Space)</i>	11.847	9.089	11.765		11.765	17.608	16.630	16.467	16.759	Continuing	Continuing
• APN / 0577: <i>Common Avionics</i>	11.735	8.025	8.073		8.073	8.099	8.497	8.645	8.806	173.909	577.633
Remarks											
D. Acquisition Strategy											
<p>Navigation Warfare (NAVWAR): The Sea NAVWAR program is executed in three increments. Increment 1 is GPS Antenna System (GAS-1). Increment 2 is Advanced Digital Antenna Production (ADAP). The purpose of Increments 1 and 2 is to integrate AJ antennas on surface platforms. Increment 3 Submarine Ant-Jam GPS Enhancement (SAGE) will integrate AJ capability on submarines. The Air NAVWAR program is executed in a single increment with GAS-1 and ADAP to integrate on air platforms, and development of a smaller Anti-Jam (AJ) antenna and a conformal low-observable AJ antenna for aircraft with unique requirements.</p> <p>GPNTS: The GPS-based Positioning Navigation and Timing (GPNTS) program will be conducted in two increments. Increment I will develop, acquire, and field the GPNTS, a scalable Selective Availability/ Anti-Spoofing Module (SAASM) GPS-based Service Oriented Architecture Positioning, Navigation, and Timing (PNT) system that will provide an open, extensible, modernized replacement for the current fleet PNT systems, while targeting Common Computing Environments (CCE). Increment II will integrate Military GPS User Equipment (MGUE) that will allow the U.S. Navy to leverage current and future technology development provided by the GPS Wing, formerly known as the GPS Joint Program Office (JPO). GPNTS will operate at the UNCLASSIFIED level, and can provide the PNT data to higher classified systems.</p>											

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Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: <i>Research, Development, Test & Evaluation, Navy</i> BA 5: <i>System Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604777N: <i>Navigation/Id System</i>	PROJECT 0921: <i>NAVSTAR GPS Equipment</i>
E. Performance Metrics <p>The primary metric used for the Air NAVWAR Program is acceptable system performance in a GPS denied environment which is defined by classified values of jamming to signal ratio (J/S) identified in the Enhanced GPS User Equipment (UE) Operational Requirements Document (ORD) 562-06-00 of 7 June 2000. The performance goal is met if acceptable system performance is achieved in the threshold J/S environment cited in the classified appendix.</p> <p>The primary metric used for the Sea NAVWAR is acceptable system performance in a GPS denial environment defined by classified values of jamming to signal ratio (J/S) identified in the Sea NAVWAR Increment 2 Capabilities Production Document (CPD) (12/08). The performance goal is met if acceptable system performance is achieved in the threshold J/S environment cited in the CPD.</p> <p>The primary metrics used for the GPNTS is successful completion of the system development as outlined in the GPNTS Technical Requirements Document (TRD).</p>		

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Product Development (\$ in Millions)				FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Product Development	WR	SSC PAC/ NAWC:San Diego/ China Lake, Pax River	275.775	0.000		0.000		0.000		-		0.000	0.000	275.775	
Product Development	WR	SSC PAC:San Diego	71.009	0.900	Oct 2011	0.910	Oct 2012	0.749	Oct 2013	-		0.749	Continuing	Continuing	Continuing
Product Dev (other in house)	WR	SSC PAC:San Diego	438.896	0.000		0.000		0.000		-		0.000	0.000	438.896	
Systems Engineering	WR	Govt/Contractor:San Diego	20.141	0.855	Jan 2012	0.900	Jan 2013	0.741	Jan 2014	-		0.741	Continuing	Continuing	Continuing
Product Development	C/CPIF	Raytheon:San Diego	2.593	8.030	Jan 2012	6.995	Jan 2013	5.770	Jan 2014	-		5.770	Continuing	Continuing	Continuing
Product Development	C/CPFF	Boeing:St Louis	15.445	0.000		0.000		0.000		-		0.000	0.000	15.445	
Subtotal			823.859	9.785		8.805		7.260		0.000		7.260			
Support (\$ in Millions)				FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Development Support	WR	SSC PAC/ NAWC:San Diego/ Pax River/China Lake	12.710	0.000		0.000		0.000		-		0.000	0.000	12.710	
Software Development	WR	SSC PAC/ NAWC:San Diego/ Pax River/ China Lake	10.450	0.000		0.000		0.000		-		0.000	0.000	10.450	
Integrated Logistics Support	WR	SSC PAC/ NAWC:San Diego/ Pax River	7.102	0.596	Dec 2011	0.650	Dec 2012	0.535	Dec 2013	-		0.535	Continuing	Continuing	Continuing
Training Development	WR	SSC PAC/ NAWC:San Diego/ Pax River	5.375	0.000		0.000		0.000		-		0.000	0.000	5.375	

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Support (\$ in Millions)				FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Technical Data	WR	Platform PMOs:San Diego	4.650	0.000		0.000		0.000		-		0.000	0.000	4.650	
Technical Data	C/CPAF	BAH:San Diego, Pax River	0.000	0.496	Jan 2012	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Technical Data	WR	SSC PAC:San Diego	0.000	2.000	Dec 2011	2.240	Dec 2012	1.844	Dec 2013	-		1.844	Continuing	Continuing	Continuing
Technical Data	WR	NAWC:Pax River	0.000	0.254	Dec 2011	0.275	Dec 2012	0.226	Dec 2013	-		0.226	Continuing	Continuing	Continuing
Technical Data	WR	NAWC:China Lake	0.000	0.250	Dec 2011	0.290	Dec 2012	0.239	Dec 2013	-		0.239	Continuing	Continuing	Continuing
Technical Data	C/CPFF	BAH:San Diego, Pax River, China Lake	0.000	0.000		0.630	Nov 2012	0.519	Nov 2013	-		0.519	0.000	1.149	
Subtotal			40.287	3.596		4.085		3.363		0.000		3.363			
Test and Evaluation (\$ in Millions)				FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Test & Evaluation	WR	SSC PAC/NAWC PAX:San Diego/Pax River	29.729	0.608	Nov 2011	0.700	Nov 2012	0.576	Nov 2013	-		0.576	Continuing	Continuing	Continuing
Test & Evaluation	C/CPAF	BAH:Pax River	5.276	0.000		0.000		0.000		-		0.000	0.000	5.276	
Test & Evaluation	WR	SSC PAC:San Diego	8.875	2.677	Dec 2011	3.000	Dec 2012	2.470	Dec 2013	-		2.470	Continuing	Continuing	Continuing
Test & Evaluation Platform Testing	WR	SSC PAC:San Diego	32.027	0.000		0.000		0.000		-		0.000	0.000	32.027	
Subtotal			75.907	3.285		3.700		3.046		0.000		3.046			
Management Services (\$ in Millions)				FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	C/CPAF	BAH:Pax River, San Diego	19.989	2.852	Jan 2012	0.000		0.000		-		0.000	0.000	22.841	

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy												DATE: April 2013			
APPROPRIATION/BUDGET ACTIVITY 1319: <i>Research, Development, Test & Evaluation, Navy</i> BA 5: <i>System Development & Demonstration (SDD)</i>						R-1 ITEM NOMENCLATURE PE 0604777N: <i>Navigation/Id System</i>						PROJECT 0921: <i>NAVSTAR GPS Equipment</i>			
Management Services (\$ in Millions)				FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	C/CPAF	BAH:San Diego, Pax River, China Lake	0.000	0.000		3.062	Jan 2013	2.437	Jan 2014	-		2.437	Continuing	Continuing	Continuing
Contractor Engineering Services	C/CPAF	BAH:San Diego, Pax River, China Lake	1.400	0.000		0.000		0.000		-		0.000	0.000	1.400	
Government Engineering Services	WR	SSC PAC, NAWC:San Diego, China Lake, Pax River	1.800	0.000		0.000		0.000		-		0.000	0.000	1.800	
Subtotal			23.189	2.852		3.062		2.437		0.000		2.437			
			All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			963.242	19.518		19.652		16.106		0.000		16.106			
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy

DATE: April 2013

APPROPRIATION/BUDGET ACTIVITY

1319: Research, Development, Test & Evaluation, Navy
BA 5: System Development & Demonstration (SDD)

R-1 ITEM NOMENCLATURE

PE 0604777N: Navigation/Id System

PROJECT

0921: NAVSTAR GPS Equipment

Fiscal Year	FY12				FY13				FY14				FY15				FY16				FY17				FY18			
Quarter	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
Air Navigation Warfare (NAVWAR) Acquisition M/S *	▲ GAS-1 Opt	▲ ADAP Opt				△ ADAP Opt				△ ADAP Opt				△ ADAP Opt				△ ADAP Opt				△ ADAP Opt				△ ADAP Opt		
	▲ C-CRPA Opt					△ C-CRPA Opt				△ C-CRPA Opt				△ C-CRPA Opt				△ C-CRPA Opt				△ C-CRPA Opt				△ C-CRPA Opt		
Air Navigation Warfare (NAVWAR) Integration and T&E M/S **	F/A-18 DT, OT																											
Air Navigation Warfare (NAVWAR) Platform Installation	AV-8B Installs																											
	MH-53E Installs																											
					F/A-18 E/F/G Installs																							
	EP-3E Installs																											
System Deliveries***	47				28				36				24				26				26				26			

* ADAP (Advanced Digital Antenna Production), C-CRPA (Conformal Controlled Reception Pattern Antenna), GAS-1/1N (GPS Antenna System /Navy) are Anti-Jam (AJ) antenna solutions for designated platforms.

** MDA direction of 3/30/06 directed streamlining Air NAVWAR program from three phases to one. Milestone C decision of Oct 2001 applies to all current phases.

*** APN quantities are approximate year-end total number of NAVWAR system deliveries. Quantities do not include RDT&E units, Spares, or those projected for new construction aircraft.

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Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy

DATE: April 2013

APPROPRIATION/BUDGET ACTIVITY

1319: Research, Development, Test & Evaluation, Navy
BA 5: System Development & Demonstration (SDD)

R-1 ITEM NOMENCLATURE

PE 0604777N: Navigation/Id System

PROJECT

0921: NAVSTAR GPS Equipment

Fiscal Year	FY12				FY13				FY14				FY15				FY16				FY17				FY18			
Quarter	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
Global Positioning System (GPS) - Based Positioning, Navigation and Timing (PNT) Service (GPNTS) Milestone/Acquisition Increment 1 *		▲ PDR ▲ Post PDR Assessment						△ CDR							△ MS C					△ IOC								
GPNTS Milestone/Acquisition Increment 2 **												△	Pre MS B Activities															
GPNTS Contracts											△ EDM Delivery		△ LRIP Option						△ FRP Option									
GPNTS Test & Evaluation Increment 1 *								△ Integrated Testing							△ OTRR		△ IOT&E											
															△ Technical Eval		△ JITC Testing											
System Deliveries											3				6				6					5				5

* Global Positioning System (GPS) Positioning, Navigation, Timing (PNT) Service GPNTS will be a single Program of Record (POR), which will receive, process, and distribute three dimensional position, velocity, acceleration, time, and frequency in the formats required by shipboard user systems. GPNTS will be scalable to accommodate back fit of current legacy PNT systems as well as forward fit of new platforms.

* Increment 1 will develop, acquire, and field a baseline GPNTS integrating current Selective Availability Anti-Spoof Module (SAASM) GPS receiver. GPNTS will be based on open standards in a Service Oriented Architecture (SOA) that will provide an open, extensible, and modernized replacement for the current fleet PNT systems, while targeting Common Computing Environments (CCE).

** Increment 2 will integrate Military GPS User Equipment (MGUE), which will allow the U.S. Navy to leverage current and future technology that will allow the U.S. Navy to leverage current and future technology development provided by the GPS Wing (GPSW), including Military Code (M-Code).

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Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy **DATE:** April 2013

APPROPRIATION/BUDGET ACTIVITY 1319: <i>Research, Development, Test & Evaluation, Navy</i> BA 5: <i>System Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604777N: <i>Navigation/Id System</i>	PROJECT 0921: <i>NAVSTAR GPS Equipment</i>
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Fiscal Year	FY12				FY13				FY14				FY15				FY16				FY17				FY18			
Quarter	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
Sea Navigation Warfare (NAVWAR) Acquisition M/S																												
Sea Increment 2 (ADAP)*																												
Sea Increment 3 (SUB)**																												
Contracting Activities																												
Sea Increment 3 (SUB)**	Prototype Contracting								Prototype PRA Contracting																			
Sea Navigation Warfare (NAVWAR) System Development																												
Sea Increment 3 (SUB)**	TRA				Prototype Development				PRA Development																			
Sea Navigation Warfare (NAVWAR) Platform T&E M/S																												
Sea Increment 2 (ADAP) DT& OT*				△ CG DT		△ CVN DT			△ LHD DT																			
Sea Increment 3 (SUB)**									△ Prototype DT	△																		
Sea Navigation Warfare (NAVWAR) Platform Installation																												
Sea Increment 2 (ADAP)*	ADAP: LCAC, MCM, LSD, CVN, DDG, CG, LSD, WHEC, WMSL																											
Sea Increment 3 (SUB)**																												
System Deliveries***	9				44				20				32				24				30				44			

*ADAP is the Advanced Digital Antenna Production program, the Navy's development of a smaller Anti-Jam (AJ) antenna.

**Sea NAVWAR Increment 3 - Submarine (SUB): Per MDA Merger Decision dated 24 July 2012, the Sea NAVWAR Increment 3 program will merge with the OE-538 Increment 2 program. Preparations are being conducted to restructure Sea NAVWAR acquisition documentation e.g. APBA to reflect this merger.

***Quantities are approximate year-end total number of NAVWAR system deliveries. Quantities do not include RDT&E units, SCN or Spares.

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Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: <i>Research, Development, Test & Evaluation, Navy</i> BA 5: <i>System Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604777N: <i>Navigation/Id System</i>	PROJECT 0921: <i>NAVSTAR GPS Equipment</i>	

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 0921				
Air Navigation AV-8B Installations	1	2012	4	2013
Air Navigation F/A 18 E/F/G DT/OT	1	2012	2	2012
Air Navigation MH-53E Installations	1	2012	4	2013
Air Navigation GAS-1 Option 2012	2	2012	2	2012
Air Navigation ADAP Option 2012	2	2012	2	2012
Air Navigation C-CRPA Option 2012	2	2012	2	2012
Air Navigation F/A-18 E/F/G Installations	3	2012	4	2018
Air Navigation EP-3E Installs	3	2012	1	2013
Air Navigation ADAP Option 2013	2	2013	2	2013
Air Navigation C-CRPA Option 2013	2	2013	2	2013
Air Navigation ADAP Option 2014	2	2014	2	2014
Air Navigation C-CRPA Option 2014	2	2014	2	2014
Air Navigation ADAP Option 2015	2	2015	2	2015
Air Navigation C-CRPA Option 2015	2	2015	2	2015
Air Navigation ADAP Option 2016	2	2016	2	2016
Air Navigation C-CRPA Option 2016	2	2016	2	2016
Air Navigation ADAP Option 2017	2	2017	2	2017
Air Navigation C-CRPA Option 2017	2	2017	2	2017
Air Navigation ADAP Option 2018	2	2018	2	2018
Air Navigation C-CRPA Option 2018	2	2018	2	2018
Sea Navigation Increment 3 (SUB) Prototype Contracting	1	2012	4	2012

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Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy			DATE: April 2013	
APPROPRIATION/BUDGET ACTIVITY 1319: Research, Development, Test & Evaluation, Navy BA 5: System Development & Demonstration (SDD)	R-1 ITEM NOMENCLATURE PE 0604777N: Navigation/Id System		PROJECT 0921: NAVSTAR GPS Equipment	
	Start		End	
Events by Sub Project	Quarter	Year	Quarter	Year
Sea Navigation Increment 3 (SUB) Prototype PRA Contracting	4	2013	2	2014
Sea Navigation Increment 3 (SUB) Technical Readiness Assessment	1	2012	4	2012
Sea Navigation Increment 3 (SUB) Prototype Development	4	2012	4	2013
Sea Navigation Increment 3 (SUB) PRA Development	3	2014	1	2017
Sea Navigation Increment 2 (ADAP) CG DT	4	2012	4	2012
Sea Navigation Increment 2 (ADAP) CVN DT	1	2013	1	2013
Sea Navigation Increment 2 (ADAP) LHD DT	4	2013	4	2013
Sea Navigation Increment 3 (SUB) Prototype DT	4	2013	2	2014
Sea Navigation Increment 3 (SUB) PRA DT	2	2017	2	2017
Sea Navigation Increment 3 (SUB) FOT&E	3	2017	3	2017
Sea Navigation Increment 2 (ADAP) Installations	1	2012	4	2018
GPNTS Post PDR Assessment	2	2012	2	2012
GPNTS PDR	2	2012	2	2012
GPNTS Increment 1 Integrated Test 3rd Qtr	4	2013	4	2013
GPNTS CDR	4	2013	4	2013
GPNTS Increment 1 EDM Delivery	1	2014	1	2014
GPNTS INCREMENT 2 MS B Prep Activities	4	2014	4	2014
GPNTS MS C	3	2015	3	2015
GPNTS M/S C LRIP	1	2015	1	2015
GPNTS Increment 1 OTRR	3	2015	3	2015
GPNTS Increment 1 Tech Eval	4	2015	4	2015
GPNTS Increment 1 IOT&E	1	2016	1	2016
GPNTS Increment 1 JITC Testing	1	2016	1	2016
GPNTS IOC	4	2016	4	2016
GPNTS FRP DR	1	2017	1	2017

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Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy			DATE: April 2013	
APPROPRIATION/BUDGET ACTIVITY 1319: Research, Development, Test & Evaluation, Navy BA 5: System Development & Demonstration (SDD)		R-1 ITEM NOMENCLATURE PE 0604777N: Navigation/Id System		PROJECT 0921: NAVSTAR GPS Equipment
		Start		End
Events by Sub Project		Quarter	Year	Quarter Year
GPNTS Increment 1 FRP Option A		3	2016	3 2016

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Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy									DATE: April 2013			
APPROPRIATION/BUDGET ACTIVITY 1319: Research, Development, Test & Evaluation, Navy BA 5: System Development & Demonstration (SDD)					R-1 ITEM NOMENCLATURE PE 0604777N: Navigation/Id System				PROJECT 1253: Combat Ident System			
COST (\$ in Millions)	All Prior Years	FY 2012	FY 2013 [#]	FY 2014 Base	FY 2014 OCO ^{##}	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
1253: Combat Ident System	140.856	11.256	18.250	20.107	-	20.107	4.530	3.939	3.745	2.024	Continuing	Continuing
Quantity of RDT&E Articles	0	4	10	0		0	0	0	0	0		
# FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012												
## The FY 2014 OCO Request will be submitted at a later date												
A. Mission Description and Budget Item Justification												
In August 2003 the Navy Mark XIIA Mode 5 program was approved for entry in Systems Development and Demonstration phase with approval to develop prototypes. In July 2006, the Navy Mark XIIA Mode 5 program was approved for entry into the Production and Deployment Phase and Low Rate Initial Production. In March 2007, Joint Requirements Oversight Council Memorandum (047-07) endorsed a Mode 5 Joint Initial Operational Capability (IOC) in FY14 and Joint Full Operational Capability in 2020.												
RDT&E articles include Mode 5 cryptographic modules and associated hardware and software changes, AN/APX-123, AN/APX-119, and AN/APX-111. These RDT&E units are to support hardware, software, and integration efforts to host systems on remaining aircraft Type/Model/Series, including AH-1Z/UH-1Y, E-2D, MH-60R/S, MV-22, KC-130J, and F/A-18E/F and EA-18G.												
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)									FY 2012	FY 2013	FY 2014	
Title: Mode 5 prototype hardware, cryptographic module									6.938	12.568	11.327	
									Articles: 4	10	0	
Description: Perform development of kits for installation into existing fleet assets including AN/UPX-37/41C Interrogator, AN/APX-118/123 Common Digital Transponder, and AN/APX-111 Combined Interrogator Transponder. Repair and correct deficiencies identified during testing and procure low rate initial production (LRIP) units (OPN, APN5, and RDTE) to support testing and platform integration. LRIP units include Mode 5 cryptographic module install kits for AN/UPX-37/41C, AN/APX-118/123, AN/APX-119, and AN/UPX-24 with associated hardware and software changes to the host boxes. Perform platform integration efforts for the AN/UPX-37/41C Interrogator, AN/APX-118/123 Common Digital Transponder, AN/APX-119 Transponder, and AN/APX-111 Combined Interrogator Transponder.												
FY 2012 Accomplishments: Continued integration in MV-22, F/A-18E/F and EA-18G aircraft.												
FY 2013 Plans:												

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Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013		
APPROPRIATION/BUDGET ACTIVITY 1319: Research, Development, Test & Evaluation, Navy BA 5: System Development & Demonstration (SDD)		R-1 ITEM NOMENCLATURE PE 0604777N: Navigation/Id System		PROJECT 1253: Combat Ident System
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)				
Continue integration and finalize equipment qualification testing of the Mode 5 AN/APX-111 Combined Interrogator Transponder (CIT) in the F/A-18E/F and EA-18G aircraft with the H10 Mission Computer software to support start of developmental test. Initiate integration of the AN/APX-119 transponder in the KC-130J aircraft. MV-22 APX-123 integration will finalize in FY13. FY 2014 Plans: Finalize integration of the Mode 5 AN/APX-111 CIT in the F/A-18E/F and EA-18G aircraft to support Mode 5 Joint IOC requirement. Continue integration of the AN/APX-119 transponder in the KC-130J.		FY 2012	FY 2013	FY 2014
Title: Mode 5 systems Engineering and Integrated Logistics Support (ILS) Articles: Description: Performed systems engineering and analysis in support of Mode 5 hardware/software development on AN/UPX-37/41C Interrogator, AN/APX-118/123 Common Digital Transponder, AN/APX-119 Transponder, AN/APX-111 Combined Interrogator Transponder, Cryptographic Module, Mode 5 Engineering Test Equipment, and Mode 5 support equipment. The Cryptographic Module included, but is not limited to, activities such as ILS, Design and Engineering Studies and Analysis, and Configuration Management performed as the Lead Service. FY 2012 Accomplishments: Continued systems engineering and analysis for MV-22, F/A-18E/F and EA-18G aircraft. FY 2013 Plans: Continue systems engineering and analysis for MV-22, F/A-18E/F and EA-18G aircraft and begin flight test. FY 2014 Plans: Finalize systems engineering and logistics efforts in support of fleet fielding of the Mode 5 CIT for the F/A-18E/F and EA-18G. Initiate planning and development of logistics products for the KC-130J APX-119.		2.597 0	1.851 0	2.769 0
Title: Mode 5 Upgrade Developmental Test & Operational Test Articles: Description: Perform Mode 5 developmental and operational test phases for AN/UPX-37/41C Interrogator, AN/APX-118/123 Common Transponder, AN/APX-119 Transponder, and AN/APX-111 Combined Interrogator Transponder. FY 2012 Accomplishments: Conducted initial lab testing on Mode 5 AN/APX-111, integrated testing on the MV-22 and operational testing on the E-2D and MV-22. FY 2013 Plans:		1.721 0	3.831 0	6.011 0

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Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy								DATE: April 2013			
APPROPRIATION/BUDGET ACTIVITY 1319: <i>Research, Development, Test & Evaluation, Navy</i> BA 5: <i>System Development & Demonstration (SDD)</i>				R-1 ITEM NOMENCLATURE PE 0604777N: <i>Navigation/Id System</i>				PROJECT 1253: <i>Combat Ident System</i>			
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)											
								FY 2012	FY 2013	FY 2014	
Continue lab testing on Mode 5 AN/APX-111, integrated testing on the MV-22 and operational testing on the E-2D and MV-22.											
FY 2014 Plans: Finalize developmental testing and conduct operational testing on the F/A-18E/F and EA-18G of the Mode 5 CIT equipment and platform H10 Mission Computer integration software in support of fleet release of the Mode 5 capability at the end of 2014.											
Accomplishments/Planned Programs Subtotals								11.256	18.250	20.107	
C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
• OPN/2851: <i>Identification Systems</i>	31.470	35.474	38.934		38.934	38.570	35.096	29.038	29.513	Continuing	Continuing
• APN/0582: <i>Identification Systems</i>	32.030	39.846	41.800		41.800	46.830	55.314	47.166	47.974	Continuing	Continuing
Remarks											
D. Acquisition Strategy The Acquisition Strategy is to develop Mode 5 Engineering Change Proposals for modern Mark XII Identification Friend or Foe equipment and integrate into all Navy Combat Weapons systems platforms and transition the Navy's Cooperative Identification Capability to Mode 5.											
E. Performance Metrics Begin Full Rate Production and achieve Initial Operational Capability in FY 2012.											

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy												DATE: April 2013			
APPROPRIATION/BUDGET ACTIVITY 1319: Research, Development, Test & Evaluation, Navy BA 5: System Development & Demonstration (SDD)						R-1 ITEM NOMENCLATURE PE 0604777N: Navigation/Id System				PROJECT 1253: Combat Ident System					
Product Development (\$ in Millions)				FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary Hardware Development	C/FFP	Lockheed:Owego, NY	3.354	0.000		0.000		0.000		-		0.000	0.000	3.354	7.005
Primary Hardware Development	WR	NAWCWD:China Lake CA	12.027	0.000		2.735	Jan 2013	5.821	Feb 2014	-		5.821	0.294	20.877	
Primary Hardware Development	SS/CPFF	Northrup Grumman:Bethpage NY	3.886	0.000		0.000		0.000		-		0.000	0.000	3.886	5.587
Primary Hardware Development	Various	BAE:Greenlawn NY	26.343	0.093	Apr 2012	0.114	Jan 2013	0.000		-		0.000	0.000	26.550	27.097
Primary Hardware Development	Various	Boeing:Philadelphia, PA	6.683	0.250	Jun 2012	0.000		0.000		-		0.000	0.000	6.933	7.547
Primary Hardware Development	Various	Raytheon:Towson, MD	1.164	0.000		0.000		0.000		-		0.000	0.000	1.164	1.517
Primary Hardware Development	Various	Boeing:St Louis. MO	17.521	5.095	Jun 2012	8.960	Jan 2013	5.506	Jan 2014	-		5.506	4.551	41.633	61.461
Systems Engineering	WR	NAWCAD:PAX River, MD	10.671	1.251	Nov 2011	1.682	Nov 2012	1.605	Nov 2013	-		1.605	Continuing	Continuing	Continuing
Systems Engineering	WR	NAWCAD:St Inigoes, MD	13.457	0.068	Nov 2011	0.125	Nov 2012	0.540	Nov 2013	-		0.540	Continuing	Continuing	Continuing
Systems Engineering	WR	NAWCWD:China Lake, CA	0.600	0.000		0.000		0.000		-		0.000	0.000	0.600	
Primary Hardware Development	Various	L-3:Waco, TX	0.000	0.000		0.759	Mar 2013	0.000		-		0.000	0.224	0.983	3.275
Subtotal			95.706	6.757		14.375		13.472		0.000		13.472			
Support (\$ in Millions)				FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
ILS	Various	Various:Various	3.552	0.117	Nov 2011	0.045	Nov 2012	0.624	Nov 2013	-		0.624	Continuing	Continuing	Continuing
Software Development	Various	Various:Various	2.708	0.000		0.000		0.000		-		0.000	0.000	2.708	

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy												DATE: April 2013			
APPROPRIATION/BUDGET ACTIVITY 1319: Research, Development, Test & Evaluation, Navy BA 5: System Development & Demonstration (SDD)						R-1 ITEM NOMENCLATURE PE 0604777N: Navigation/Id System						PROJECT 1253: Combat Ident System			
Support (\$ in Millions)				FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Technical data	Various	Various:Various	0.053	0.000		0.000		0.000		-		0.000	0.000	0.053	
Subtotal			6.313	0.117		0.045		0.624		0.000		0.624			
Test and Evaluation (\$ in Millions)				FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental T & E	WR	NAWCAD:PAX River MD	14.612	4.192	Nov 2011	3.830	Nov 2012	3.767	Nov 2013	-		3.767	7.705	34.106	
Operational T & E	WR	NAWCAD:PAX River MD	16.433	0.190	Nov 2011	0.000		2.244	Nov 2013	-		2.244	0.000	18.867	
Test Assets	Various	Various:Various	3.396	0.000		0.000		0.000		-		0.000	0.000	3.396	
Subtotal			34.441	4.382		3.830		6.011		0.000		6.011	7.705	56.369	
Management Services (\$ in Millions)				FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Contract Engineering Support	Various	Various:Various	0.450	0.000		0.000		0.000		-		0.000	0.000	0.450	0.450
Government Engineering Support	Various	Various:Various	1.811	0.000		0.000		0.000		-		0.000	0.000	1.811	
Program Management Support	Various	Various:Various	1.961	0.000		0.000		0.000		-		0.000	0.000	1.961	
ETS (Non-FFRDC)	WR	Various:PAX River MD	0.174	0.000		0.000		0.000		-		0.000	0.000	0.174	
Subtotal			4.396	0.000		0.000		0.000		0.000		0.000	0.000	4.396	

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy											DATE: April 2013		
APPROPRIATION/BUDGET ACTIVITY 1319: Research, Development, Test & Evaluation, Navy BA 5: System Development & Demonstration (SDD)					R-1 ITEM NOMENCLATURE PE 0604777N: Navigation/Id System					PROJECT 1253: Combat Ident System			
	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	140.856	11.256		18.250		20.107		0.000		20.107			

Remarks

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy

DATE: April 2013

APPROPRIATION/BUDGET ACTIVITY

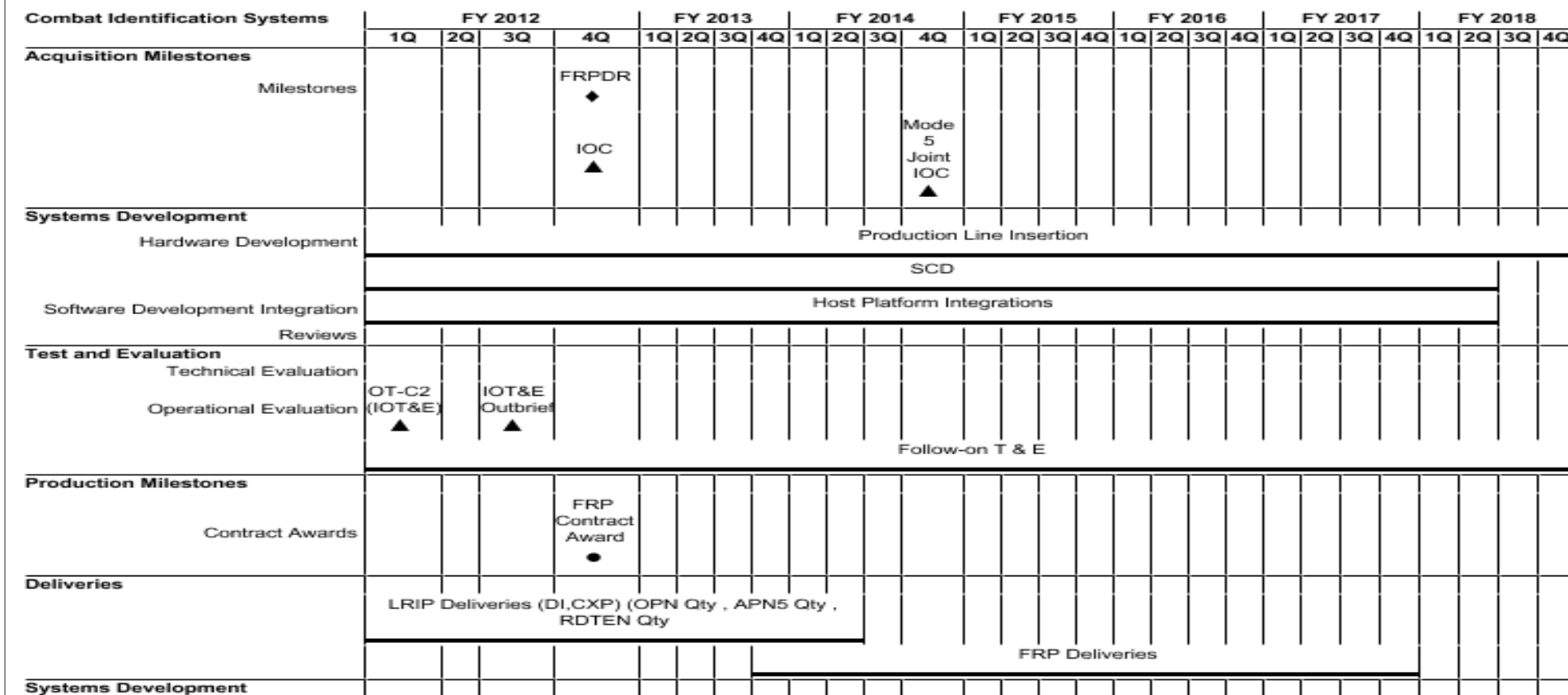
1319: Research, Development, Test & Evaluation, Navy
BA 5: System Development & Demonstration (SDD)

R-1 ITEM NOMENCLATURE

PE 0604777N: Navigation/Id System

PROJECT

1253: Combat Ident System



2014PB - 0604777N - 1253

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: <i>Research, Development, Test & Evaluation, Navy</i> BA 5: <i>System Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604777N: <i>Navigation/Id System</i>	PROJECT 1253: <i>Combat Ident System</i>	

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Combat Identification Systems				
Acquisition Milestones: Milestones: Full Rate Production Decision Review (FRPDR)	4	2012	4	2012
Acquisition Milestones: Milestones: IOC	4	2012	4	2012
Acquisition Milestones: Milestones: Mode 5 Joint IOC	4	2014	4	2014
Systems Development: Hardware Development: Production Line Insertion	1	2012	4	2018
Systems Development: Hardware Development: Prepare & Evaluate ECPs/SCDs	1	2012	2	2018
Systems Development: Software Development Integration: Host Platform Integrations	1	2012	2	2018
Test and Evaluation: Operational Evaluation: OT-C2 (IOT&E)	1	2012	1	2012
Test and Evaluation: Operational Evaluation: IOT&E Outbrief	3	2012	3	2012
Test and Evaluation: Operational Evaluation: Follow-on Test and Evaluation	1	2012	4	2018
Production Milestones: Contract Awards: FRP Contract Award	4	2012	4	2012
Deliveries: Low-Rate Initial Production (LRIP) Deliveries (DI,CXP) (OPN, APN5, RDTEN)	1	2012	2	2014
Deliveries: FRP Deliveries	4	2013	4	2017