Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Navy											Date: February 2015	
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 5: *System Development & Demonstration (SDD)*					R-1 Program Element (Number/Name) PE 0604215N *I Standards Development*							
COST ($ in Millions)	**Prior Years**	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**	**Cost To Complete**	**Total Cost**
Total Program Element	1,013.857	66.594	53.706	53.059	-	53.059	69.896	67.370	62.158	63.438	Continuing	Continuing
0572: *JT Service/NV Std Avionics CP/SB*	840.517	52.284	42.260	39.890	-	39.890	54.412	52.878	47.840	48.825	Continuing	Continuing
1857: *Calibration Standards*	10.734	1.830	1.582	1.653	-	1.653	1.692	1.712	1.751	1.786	Continuing	Continuing
2311: *Stores Planning and Weaponeering Module*	147.198	11.956	9.305	10.941	-	10.941	13.125	12.101	11.874	12.120	Continuing	Continuing
2312: *Common Helicopters*	15.408	0.524	0.559	0.575	-	0.575	0.667	0.679	0.693	0.707	Continuing	Continuing

A. Mission Description and Budget Item Justification

This project provides for the identification, study, design, development, demonstration, test, evaluation, and qualification of standard avionics capabilities for Navy use, and wherever practicable, use across all Services and Foreign Military Sales. Such air combat electronics developments include communications and airborne networking, navigation and sensors, flight avionics, safety systems, and flight mission information systems for both forward fit and retrofit aircraft. These efforts continue to maintain federated systems while encouraging transition of procurements to support a modular system for enhanced performance and affordability. Consideration is given up front to reduce acquisition costs through larger procurement quantities that satisfy multi-aircraft customer requirements and that reduce life cycle costs in the areas of reliability, maintainability, and training. This project also provides a Navy-wide program to develop required calibration standards (hardware) in all major measurement technology areas in support of Navy Hull, Mechanical and Electrical (HM&E) systems as well as Navy Weapons systems, ground and air, throughout the Fleet. It funds Navy lead-service responsibilities in the Department of Defense and Joint Services Metrology Research and Development program. This project supports the military requirement to verify the performance of all test systems used to validate the operation of HM&E as well as Navy Weapon Systems with calibration standards traceable to the National Institute of Standards and Technology.

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 requirements prior to full-rate production decision.

The FY 2016 funding request was reduced by $7.045 million to account for the availability of prior year execution balances.

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Navy					Date: February 2015
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 5: *System Development & Demonstration (SDD)*			R-1 Program Element (Number/Name) PE 0604215N *I Standards Development*		
B. Program Change Summary ($ in Millions)	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**
Previous President's Budget	68.497	53.712	59.023	-	59.023
Current President's Budget	66.594	53.706	53.059	-	53.059
Total Adjustments	-1.903	-0.006	-5.964	-	-5.964
• Congressional General Reductions	-	-0.006			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-1.903	-			
• Program Adjustments	-	-	1.500	-	1.500
• Rate/Misc Adjustments	-	-	-7.464	-	-7.464

Change Summary Explanation

Technical: Not applicable.

Schedule:

0572:
Communication Navigation Surveillance/Air Traffic Management - Integration/Certification of 8.33 kHz, MODE S, Reduced Vertical Separation Minimum (RVSM), RNP/RNAV, and Automatic Dependent Surveillance-Broadcast (ADS-B(Out)) for E-2D removed to align with funding mandates. Evaluation of ADS-B(Out) technologies/develop solutions to support platform integrations resumes 1Q/16 to incorporate efforts to evaluate updates to Federal Avaiation Administration ADS-B(Out) mandate.

Tactical Communications - Changed title of IW SATCOM S/W Development Phase 2 to SATCOM S/W Development (with MUOS). SATCOM S/W Development (with MUOS) start shifted from 2Q/16 to 2Q/15. Crypto Engine Design start shifted from 1Q/17 to 1Q/16.

Ground Proximity Warning Systems/Terrain Awareness Warning System - Changed title of H-60 TAWS II DT to H-60 TAWS II DT (Phase I and II). Milestone C for H-60 TAWS II shifted from 3Q/17 to 1Q/18.

Mid Air Collision Avoidance Capability - FY14 Congressional Reduction and subsequent efforts to realign with platform program efforts resulted in the following schedule changes: Added Integrated Logistics Assessment in 1Q/18, Analysis of Alternative (AOA) shifted from 1Q/15 to 3Q/15. Capabilities Development Document (CDD) shifted from 1Q/16 to 3Q/16. MDD/ASR shifted from 2Q/15 to 4Q/15. Milestone B from 2Q/16 to 2Q/18, Milestone C from 1Q/19 to outside the FYDP, SRB from 2Q/15 to 4Q/16, SRR from 2Q/15 to 4Q/16, PDR from 3Q/15 to 4Q/17, CDR from 2Q/16 to 2Q/19, Software Design and Development 3Q/15 to

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Navy	Date: February 2015
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 5: *System Development & Demonstration (SDD)*	**R-1 Program Element (Number/Name)** PE 0604215N *I Standards Development*

1Q/18, Platform Integration Test Support shifted from 3Q/15 to 1Q/19. Integration of MH-60R/S from 1Q/16 to 1Q/20, Integration of UH-1Y/AH-1Z from 3Q/16 to 4Q/20, Test and Evaluation of MH-60R/S from 1Q/17 to outside the FYDP, and Test and Evaluation of UH-1Y/AH-1Z from 1Q/18 to outside the FYDP. Removed Integration of F/A-18 and Test and Evaluation of F/A-18.

2311:
Stores Planning and Weaponeering Module schedule presentation has been changed to align more closely with acquisition reporting at a higher level of detail. Test and Evaluation Milestones and Production Milestones have been adjusted to align Initial Operational Capability dates with platform software releases.

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy			Date: February 2015
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604215N / *Standards Development*	Project (Number/Name) 0572 / *JT Service/NV Std Avionics CP/SB*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
0572: *JT Service/NV Std Avionics CP/SB*	840.517	52.284	42.260	39.890	-	39.890	54.412	52.878	47.840	48.825	Continuing	Continuing
Quantity of RDT&E Articles		21	-	-	-	-	-	-	-	-		

Note

FY15 New Start is Mid Air Collision Avoidance Capability (MCAC).

A. Mission Description and Budget Item Justification

Joint Services/Navy Standard Avionics Components and Subsystems: This project provides for the identification, study, design, development, demonstration, test, evaluation, and qualification of standard avionics capabilities for Navy use, and wherever practicable, use across all Services and Foreign Military Sales. Standard avionics capabilities under development include the Joint Service Review Committee for Avionics Standardization (JSRC-AS), Communication Navigation Surveillance/ Air Traffic Management (CNS/ATM), Tactical Communications (TACCOM), Ground Proximity Warning System/Terrain Awareness Warning System (GPWS/TAWS), Military Flight Operations Quality Assurance (MFOQA), Collaborative Warfare (CW), Avionics Component Improvement Program (AvCIP), Advanced Digital Data Set (ADDS), Mid Air Collision Avoidance Capability (MCAC), and Avionics Architectures. Participation in Human Factors Quality Management Board ensures Navy safety upgrades and mandatory safety improvements for naval aircraft.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Title: Joint Service Review Committee for Avionics Standardization (JSRC-AS)	0.846	0.857	1.000	-	1.000
Articles:	-	-	-	-	-
Description: The JSRC-AS program supports Congressional and Assistant Secretary of the Navy for Research, Development and Acquisition direction to control the growing proliferation of unique avionics and improve coordination among the services through the identification, development, and promotion of investigative and development efforts across the services and U.S. Coast Guard. The JSRC-AS supports the development, analysis and review of new avionics requirements with potential for joint service application. The JSRC-AS consists of an O-6 Level principal from each service and U.S. Coast Guard, as well as the appropriate staff, to support joint service working group efforts. The JSRC-AS reports to the O-7 level tri-service Aviation Common Systems Board who reports to the O-9 level Joint Aeronautical Commanders Group.					
FY 2014 Accomplishments:					

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604215N / *Standards Development*	**Project (Number/Name)** 0572 / *JT Service/NV Std Avionics CP/SB*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Provided leadership and strategic vision as Naval Aviation's representatives to the Joint Service Review Committee for Avionics Standardization (JSRC-AS). Participated in joint working groups and focus efforts toward good technical and economic decisions across the services. ***FY 2015 Plans:*** Provide leadership in support of the Navy's interest to the JSRC-AS tri-service committee promoting commonality and joint programs with focus on interoperability, communications, navigation, Joint Services avionics obsolescence management, and update of the Core Avionics Master Plan. ***FY 2016 Base Plans:*** Provide leadership in support of the Navy's interest to the JSRC-AS tri-service committee promoting commonality and joint programs with focus on interoperability, communications, navigation, Joint Services avionics obsolescence management, and update of the Core Avionics Master Plan. ***FY 2016 OCO Plans:*** N/A					
Title: Communication Navigation Surveillance/Air Traffic Management (CNS/ATM)	7.248	0.491	3.575	-	3.575
Articles:	-	-	-	-	-
Description: This program will conduct and support CNS/ATM research, studies, development, integration, demonstration, test and evaluation efforts for naval aviation platforms in development. Platform integration of Mode Select (S), 8.33 kHz, Reduced Vertical Separation Minimum (RVSM), Required Navigation Performance Area Navigation (RNP/RNAV) to include M Code, and Automatic Dependent Surveillance-Broadcast Out (ADS-B (Out)) functional integration and certification efforts into naval aircraft. Assist with insertion of communication, navigation, surveillance, and supporting technologies and conduct capability certification on developmental platforms such as E-2D, P-8A, Joint Strike Fighter, CH-53K, and Unmanned Air Systems. Capabilities include Mode S, 8.33 kHz, RVSM, RNP/RNAV, ADS-B (Out), and other civil and military capabilities. ***FY 2014 Accomplishments:*** Researched Mode S diversity requirements and design solutions for developmental platforms. Evaluated ADS-B (Out) technologies and developed solutions to support platform integrations. Assisted with insertion of CNS/ATM technologies on and certification of developmental platforms. Developed CNS/ATM Common Components to support Required Navigation Performance Area Navigation developmental platform requirements. Where					

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604215N / *Standards Development*	**Project (Number/Name)** 0572 / *JT Service/NV Std Avionics CP/SB*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
practical, new technologies were designed to maximize reuse on future platforms through open architectures including the Future Airborne Capability Environment (FACE). ***FY 2015 Plans:*** Assist with insertion and integration of Communication Navigation Surveillance/Air Traffic Management (CNS/ ATM) technologies and certification of developmental platforms. Develop CNS/ATM Common Components to support Required Navigation Performance Area Navigation developmental platform requirements. ***FY 2016 Base Plans:*** Assist with insertion and integration of CNS/ATM technologies and certification of developmental platforms. Evaluate ADS-B (Out) technologies and develop solutions to support platform integrations. Develop CNS/ ATM Common Components to support Required Navigation Performance Area Navigation (RNP RNAV) developmental platform requirements. Begin integration/certification of Mode Select, 8.33 kHz, Reduced Vertical Separation Minimum, RNP/RNAV, and ADS-B (Out) into CH-53K. Research and develop Global Positioning System (GPS) enhancements to support CNS/ATM RNP RNAV improvements. Research and develop Automatic Dependent Surveillance-Broadcast Out System Design Assurance requirements as well as compatibility with the emerging GPS M Code and its impact on RNP RNAV. ***FY 2016 OCO Plans:*** N/A					
Title: Tactical Communications (TACCOM)	1.725	10.718	12.519	-	12.519
Articles:	-	-	-	-	-
Description: This program will conduct research, studies, development, integration, demonstration, test and evaluation efforts to ensure tactical communication systems and capabilities are developed and available to support naval aviation requirements. Perform tactical communication platform integration studies and activities to determine technical and cost effective solutions across naval aviation. Develop tactical communications (voice/data) requirements, concepts and systems which have application across naval aviation. Support all necessary tasks to ensure evolution of legacy communications systems incorporating programmable Communication Security/Information Assurance, mandated National Security Agency (NSA) Crypto Modernization initiatives, Combat Net Radio (CNR) Variable Message Format (VMF), Beyond Line-of-Sight, Satellite Communication (SATCOM) Modernization including Mobile User Objective System (MUOS), High Frequency, civil interoperability, and Joint Precision Approach Landing System (JPALS) data link into the ARC-210 system. Support for networking requirements development and prototyping, Integrated Waveform					

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604215N / *Standards Development*	**Project (Number/Name)** 0572 / *JT Service/NV Std Avionics CP/SB*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
(IW), Intelligence Broadcast System over modern Code Division Multiple Access based satellite channels, Tactical Networks, Data Links, and Link 16. ***FY 2014 Accomplishments:*** Continued Tactical Secure Voice, SATCOM and Variable Message Format (VMF) P3I S/W development. Completed IW and complete release of S/W version 4. ***FY 2015 Plans:*** Begin development of the RT-1939A and RT-1990A. Begin development of Digital Interoperability capability to include Mobile User Objective System (MUOS). Continue development of Air to Ground Interoperability, IW and Variable Message Format/Combat Net Radio. ***FY 2016 Base Plans:*** Initiate Satellite Communications Modernization phase 2 and continue development of Digital Interoperability SATCOM Software capability to include Mobile User Objective System (MUOS). Continue Joint Precision Approach Landing System Software integration with airborne capabilities for a common capabilities release. Initiate design of Crypto Engine. Complete Joint Interoperability Test Command certification to deliver VMF Software. Continue development of Air to Ground (VMF Software) Interoperability. ***FY 2016 OCO Plans:*** N/A					
Title: Ground Proximity Warning System/Terrain Awareness Warning System (GPWS/TAWS)	12.181	4.365	6.050	-	6.050
Articles:	-	-	-	-	-
Description: This program will conduct research, studies, development, integration, demonstration, test and evaluation efforts to meet naval aviation GPWS/TAWS requirements. These requirements span all operational modes and operational environments, to include Degraded Visual Environment. Perform GPWS/TAWS platform integration studies and activities to determine technical and cost effective solutions across naval aviation. Develop GPWS/TAWS solutions tailored to platform performance and range of military operations. Develop simulation models for use at Manned Flight Simulator (MFS) or other simulation environments as required for platform tailoring, including procurement of test article hardware. Evaluate aircraft simulation models for suitability in GPWS/TAWS development effort. Develop GPWS/TAWS algorithms utilizing simulation environments as real-time hardware and pilot in the loop tool. Develop and evaluate algorithm interfaces necessary for integration of the algorithm within platform host computer. Develop software code to execute GPWS/TAWS algorithm in host platforms.					

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604215N / *Standards Development*	**Project (Number/Name)** 0572 / *JT Service/NV Std Avionics CP/SB*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
FY 2014 Accomplishments: Completed Developmental Testing of H-1 GPWS in platform SCS 7.0. Achieved MS-B for H-60 TAWS with obstacles. Continued TAWS with obstacles software development for H-60. ***FY 2015 Plans:*** Complete Terrain Awareness Warning System (TAWS) II with obstacles software development and platform integration for H-60. Complete Developmental Testing (DT)of H-1 Ground Proximity Warning System. ***FY 2016 Base Plans:*** Deliver formal software build of TAWS II system to H-60. Complete beta testing of TAWS II in Manned Flight Simulator or other simulation environment. Complete Phase 1 DT in MH-60R/S. ***FY 2016 OCO Plans:*** N/A					
Title: Military Flight Operations Quality Assurance (MFOQA)	16.843	2.666	-	-	-
Articles:	-	-	-	-	-
Description: This program will develop a MFOQA baseline software integration framework using Government procured software modules to perform functions such as flight data analysis, post mission aircrew debrief, aircraft maintenance and system troubleshooting and mishap investigation to meet naval aviation requirements. Additional efforts will include software development and integration for fleet wide shore based and shipboard MFOQA implementation. Evaluate aircraft recorder systems and requirements to meet current and future MFOQA requirements. Prepare and conduct MFOQA acquisition events such as Systems Readiness Review, Agile Technical Reviews, Developmental Testing, and follow-on Decision Reviews in support of initial Rotary Wing (Phase 2) platforms. ***FY 2014 Accomplishments:*** Completed Phase 1 VX-23 Developmental Test; Achieved MS C and initiated fielding to F/A-18C-F and EA-18G. Initiated Agile software development for Phase 2 (MH-60R/S, M/CH-53, AH-1Z, and UH-1Y). ***FY 2015 Plans:*** Complete Phase 2 Agile software development, software integration and test. Complete deployment decision review and initiate deployment to rotary wing squadrons. ***FY 2016 Base Plans:***					

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604215N / *Standards Development*	**Project (Number/Name)** 0572 / *JT Service/NV Std Avionics CP/SB*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
N/A ***FY 2016 OCO Plans:*** N/A					
Title: Collaborative Warfare (CW)	0.136	0.175	0.176	-	0.176
Articles:	-	-	-	-	-
Description: The CW component is a Research & Development effort to identify targeting gaps and determine the warfighting benefit of integrating networked capabilities into naval aircraft to fill those gaps. The CW component also addresses targeting gaps for naval aircraft to operate more effectively with other military services. The following efforts are included: 1) A comprehensive naval aviation Tactical Networking Requirements Strategy that maps fleet gaps and requirements to cross-platform naval aviation solutions. The Naval Effects Cross Domain Targeting Capabilities Based Assessment concept refinement Joint Capability Integration Development System activity will be integrated into this effort. 2) Netted sensors proof of concept prototype demonstrations leveraging the Navy's Fleet Experimentation campaign. 3) Support of integration of Netted Sensors/Sensor Fusion into naval aviation Integrated Capabilities Packages supporting multi-mission capability enhancements to include input to the N81 Offensive Anti-Surface Warfare Targeting and Weapons Control study that ensures naval aviation Intelligence, Surveillance and Reconnaissance delivers a complete kill chain. 4) Provide resource sponsor oversight on an Office of Naval Research Future Naval Capability Enabling Capability for an Advanced Tactical Data Link (ATDL) for naval aviation. 5) Continue work on the Joint Tactical Networking Concept of Employment (JTN CONEMP) that aligns Navy ATDL and Joint Aerial Layer Network - Maritime with USAF future strategies. ***FY 2014 Accomplishments:*** Completed the second iteration of the JTN CONEMP and briefed results to the Air Force - Navy Warfighter Talks. Completed preparations for the TRIDENT WARRIOR 15 netted sensors FoS experiment. Supported potential integration of Naval Aviation relevant tactical networking technologies in the TRIDENT WARRIOR 14 experiment. ***FY 2015 Plans:*** Execute TRIDENT WARRIOR 15 netted sensors evolution to decentralized multi-intelligence correlation architecture. Continue executing tactical networking strategy activities to define future Program Objective Memorandums and analytic agendas. Develop requirements, standards, and architectures in support of new and updated netted-sensors' Concept of Operations and capabilities. ***FY 2016 Base Plans:***					

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604215N / *Standards Development*	**Project (Number/Name)** 0572 / *JT Service/NV Std Avionics CP/SB*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Continue executing tactical networking strategy activities to define future Program Objective Memorandums and analytic agendas. Develop requirements, standards, and architectures in support of new and updated netted-sensors' Concept of Operations and capabilities. ***FY 2016 OCO Plans:*** N/A					
Title: Avionics Component Improvement Program (AvCIP)	2.118	5.516	4.972	-	4.972
Articles:	-	-	-	-	-
Description: Investigate high value Return On Investment component improvement candidate projects in support of NAVAIR Commander's third focus area - Improve "capital A" Affordability. Stop operating and sustainment cost growth by reducing costs for fielded systems and implementing life-cycle cost reduction initiatives as part of new systems development. This program positions resources for next year application to fast-track corrections to existing problematic systems. Projects address critical readiness issues (significant back-orders or impending sustainability failures that threaten to down aircraft), functional performance obsolescence issues (system failing to support mission requirement), and top sustainment cost drivers (out of proportion annual maintenance or repair costs). Resources enable design and development of technology insertion and product redesign or replacement to meet readiness goals, meet mission objectives, or reduce overall sustainment costs. Candidate projects are submitted via a rigorous template, reviewed by a panel of Avionics professionals, and selected based upon urgency, warfighting contributions, breadth of application and scope of Return On Investment. Resources cover non-recurring engineering elements (including design and development, prototypes, platform integration, test and evaluation), program management and associated logistics elements (including technical data preparation, support equipment, provisioning, and training). Analysis shows that funding applied under this program between 2006 and 2011 will enable sustainment and procurement cost avoidances exceeding a five to one margin by 2020. ***FY 2014 Accomplishments:*** Addressed current fleet problem avionics systems (top readiness degraders, cost drivers, obsolescence-driven sustainability, capability loss, fleet head-hurters). ***FY 2015 Plans:*** Address current fleet problem avionics systems (top readiness degraders, cost drivers, obsolescence-driven sustainability, capability loss, fleet head-hurters). ***FY 2016 Base Plans:***					

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604215N / *Standards Development*	**Project (Number/Name)** 0572 / *JT Service/NV Std Avionics CP/SB*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Address current fleet problem avionics systems (top readiness degraders, cost drivers, obsolescence-driven sustainability, capability loss, fleet head-hurters). ***FY 2016 OCO Plans:*** N/A					
Title: Advanced Digital Data Set (ADDS)	11.187	-	-	-	-
Articles:	21	-	-	-	-
Description: This program consists of enabling hardware and software solution for an advanced digital data military operating environment replacing the current data transfer systems. This system includes removable memory, secure data management and storage high speed data transfer of Mission and Map data, recording data (including mission, sensor, audio, and video), and maintenance diagnostics. This approach will include development, test, integration, and delivery of development hardware. Advanced Digital Data Set (ADDS) will increase mission effectiveness by providing situational awareness, reduce crew workload, and enhanced capability for navigation, and mission planning. Data Transfer Unit (DTU) is a form/fit replacement for the existing Digital Memory Device (DMD); it will perform all the data loader/recorder functions that DMD provides. DTU will add data at rest protection via encryption for all data stored on removable memory; this includes National Security Agency (NSA) type 1 encryption for mission data and Federal Information Processing Standards 140 encryption for maintenance data. Data Transfer Unit will also provide enhanced download speed and increased storage capacity for mission and maintenance data. In order to support full time encryption, DTU will include a ground encryption device for use with the Joint Mission Planning System and software to be integrated into the Automated Maintenance Environment (AME). These enhancements will allow naval aircraft to support future weapons, systems, and tactics as well as comply with data at rest requirements. ***FY 2014 Accomplishments:*** Conduct Critical Design Review and Test Readiness Review. NSA will continue to support the vendor in developing and certifying the Type I encryption. Continue integration efforts and perform flight qualification testing, carrier suitability, and Electromagnetic Interference testing. ***FY 2015 Plans:*** N/A ***FY 2016 Base Plans:***					

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604215N / *Standards Development*	**Project (Number/Name)** 0572 / *JT Service/NV Std Avionics CP/SB*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
N/A ***FY 2016 OCO Plans:*** N/A					
Title: Mid Air Collision Avoidance Capability (MCAC)	-	3.191	3.460	-	3.460
Articles:	-	-	-	-	-
Description: This program will conduct research, studies, and development, integration, demonstration, test and evaluation efforts to meet Naval Aviation MCAC requirements. These requirements span all operational modes and operational environments, to include Degraded Visual Environment. Perform MCAC platform integration studies and activities to determine technical and cost effective solutions across Naval Aviation. Develop MCAC solutions tailored to platform performance and range of military operations. Develop simulation models for use at Manned Flight Simulator (MFS) or other simulation environments as required for platform tailoring, including procurement of test article hardware. Evaluate aircraft simulation models for suitability in MCAC development effort. Develop MCAC solutions utilizing simulation environments as real-time hardware and pilot in the loop tools. Develop and evaluate interfaces necessary for integration of MCAC within platform host environment. ***FY 2014 Accomplishments:*** N/A ***FY 2015 Plans:*** Complete Analysis of Alternatives. Conduct Materiel Development Decision/Acquisition Strategy Review. Begin engineering changes required in military transponder. Initiate engineering, manufacturing, and development efforts. ***FY 2016 Base Plans:*** Conduct Integrated Logistics Assessment. Conduct Specification Review Board (SRB) and System Readiness Review (SRR)/System Functional Review. Complete Capability Development Document. Initiate Software Design and Development. Continue Platform Integration and Test Support. ***FY 2016 OCO Plans:*** N/A					
Title: Avionics Architectures	-	14.281	8.138	-	8.138
Articles:	-	-	-	-	-
Description: The Avionics Architecture Team (AAT) provides hardware and software (HW/SW) standards and product line development and management for a common HW/SW operating environments to establish					

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604215N / *Standards Development*	Project (Number/Name) 0572 / *JT Service/NV Std Avionics CP/SB*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
testable open architecture requirements in accordance with NDAA Section 801 Open Architecture language, DoD Directive 5000.1, N6/N7 Naval Open Architecture Requirements Letter 9010, Ser. N6N7/5U916276, and SECNAVINST 5000.2E. The Future Airborne Capability Environment (FACE) Technical Standard is developed through Navy, Army, Air Force, Industry and Academia collaboration in accordance with Public Law 104-113. The Hardware Open Systems Technologies (HOST) standard is being developed through government and academia collaboration and will be provided to industry for prototyping efforts. The AAT provides Subject Matter Experts to define and architect a set of Open Architecture Standards and product lines, design guidance, development and integration tools, acquisition strategy, contracting guidance and cost estimates. The results will enable Department of Defense (DoD) weapons systems to systematically reuse HW/SW and deliver scalable, portable and interoperable war fighting capabilities at a faster rate, reducing redundant development costs and increasing competition. The AAT initiatives enable the government's role as Lead Systems Integrator, per the Weapons System Acquisition Reform Act (WSARA) 2009, and cost effectively manage data rights for reuse across the DoD. Future Airborne Capability Environment (FACE) Program Title changed to Avionics Architectures to define Naval open architecture that includes FACE and Hardware Open Systems Technologies (HOST). ***FY 2014 Accomplishments:*** N/A ***FY 2015 Plans:*** Provide development support, systems engineering and program management for design and acquisition strategy implementation guidance. Investigate revisions to the FACE technical standard to meet emerging technologies and new platform requirements. Assist developmental platforms with strategies for and implementation of the FACE technical standard. Subject Matter Expert support for platform integration and competitive source selection. ***FY 2016 Base Plans:*** Provide development support, mission based engineering, systems engineering and program management for design and acquisition strategy implementation guidance. Investigate revisions to the Future Airborne Capability Environment (FACE) and Hardware Open Systems Technologies (HOST) standards to meet emerging technologies and new platform requirements. Assist platforms with strategies for modular functional decomposition and implementation of FACE and HOST standards. Subject Matter Expert support for platform					

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604215N / *Standards Development*	**Project (Number/Name)** 0572 / *JT Service/NV Std Avionics CP/SB*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
integration and competitive source selection. Academia prototyping and demonstration efforts for FACE and HOST initiatives. ***FY 2016 OCO Plans:*** N/A					
Accomplishments/Planned Programs Subtotals	52.284	42.260	39.890	-	39.890

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• APN/05770: *Common Avionics*	117.594	153.067	202.745	13.988	216.733	197.734	173.428	176.789	124.861	636.941	4,109.560

Remarks

D. Acquisition Strategy

Communication Navigation Surveillance/Air Traffic Management (CNS/ATM) program is a system of systems. The program will encompass the integration of various systems which will be procured utilizing existing contracts for integration on forward-fit and retrofit platforms to provide CNS/ATM functionality. Tactical Communications is utilizing a firm fixed price contract to Rockwell Collins for research and development of the ARC-210 Gen 5 and other Navy contract vehicles for integration studies. The Navy will integrate systems and components to satisfy platform requirements to achieve tactical communication capability as determined by analyses. Ground Proximity Warning System/Terrain Awareness Warning System Software Modules will be developed by a Government Software Product Team in collaboration with Industry where required. Military Flight Operations Quality Assurance (MFOQA) Government activities include integrating a combination of existing aircraft hardware, ground support equipment, Commercial Off The Shelf (COTS), government off the shelf hardware and software products. MFOQA program interfaces will be created to share data captured by the automated maintenance systems (e.g., Automated Maintenance Environment, Health and Usage Monitoring Systems) and existing databases. The Navy conducted a full and open competition for the MFOQA software development, integration and support contract as well as the COTS software data analysis product. Follow-on Sole Source Product Contracts will be awarded to complete MFOQA development, as required. Avionics Component Improvement Program (AvCIP) will annually review, compete and select candidate component improvement proposals according to urgency, criticality of warfighting contributions, technical risk, breadth of application, and scope of Return On Investment (ROI). Projects are selected by a panel of Avionics management experts, including representatives from OPNAV N98, NAVAIR, NAVICP, and the Fleet. Projects are executed by managers in platform or commodity offices that own the component. The AvCIP program management team manages project selection, allocates funds, monitors multiple project executions against proposed spend plans, and tracks solution performance and achievement of projected ROIs over time using Fleet maintenance and component performance databases. Cost avoidances are coordinated with OPNAV N98 to balance Flying Hour Program costs. Component improvement solutions include modular hardware, software and material upgrades. Resources cover engineering elements (including design and development, prototypes, platform integration, test and evaluation), program management and associated logistics elements (including technical data preparation, support equipment, provisioning, and training). Advanced Digital Data Set will award a contract(s) to Industry for the development and procurement of enabling hardware and software in collaboration with platform program offices utilizing competitive methods wherever possible. Mid Air Collision Avoidance Capability (MCAC) is the capability umbrella which encompasses all systems designed and developed which aid in air-to-air collision avoidance. Systems

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604215N / *Standards Development*	**Project (Number/Name)** 0572 / *JT Service/NV Std Avionics CP/SB*

include but are not limited to Traffic Collision Avoidance Systems and Mid Air Collision Avoidance Systems. Mid Air Collision Avoidance Capability Software Modules will be developed by a Government Software Product Team in collaboration with Industry where required. Avionics Architectures will provide acquisition strategy guidance and support to platforms implementing open systems architectures to address open architecture requirements.

E. Performance Metrics

Joint Service Review Committee for Avionics (JSRC-AS) - Provide leadership in support of the Navy's interest to the JSRC tri-service committee promoting commonality and joint programs with focus on interoperability, communications, Communication Navigation Surveillance/Air Traffic Management (CNS/ATM), Joint Services avionics obsolescence management and the update of the Core Avionics Master Plan. Support and participate in Naval Aviation Requirements Group panels, Operational Advisory Group, and Human Factors Quality Management Board.
CNS/ATM - Successfully complete platform integration, test, and certifications.
Tactical Communications (TACCOM) - Achieve Joint Interoperability Test Command and National Security Agency certifications on system developmental efforts to meet operational requirements.
Ground Proximity Warning System/Terrain Awareness Warning System (GPWS/TAWS) - Develop algorithm and software to meet platform specific requirements, successfully complete flight test, and deliver product on schedule. Successfully complete Milestone B.
Military Flight Operations Quality Assurance (MFOQA) - Successfully complete Milestone C and Initial Operational Capability on schedule; successfully complete Phase 2 development and fleet introduction.
Collaborative Warfare (CW) - Identify collaborative warfighting capability gaps and ensure the development of the most intelligent, cost effective, and timely solutions to fill those gaps.
Avionics Component Improvement Program (AvCIP) - Successful project competition and selection, execution of allocated funds, fielding of solutions, and documentation of component performance enhancement and benefits.
Advanced Digital Data Set (ADDS) - Achieve program acquisition milestones on cost and schedule meeting platform requirements.
Mid Air Collision Avoidance Capability (MCAC) - Achieve program acquisition milestones on cost and schedule meeting platform requirements.
Avionics Architectures - Provide leadership in support of the Navy's interest to the Future Airborne Capability Environment (FACE) Consortium. Participate in technical and business working groups within the FACE Consortium to foster solutions that promote interoperable and integrated warfighting capability for all services. Successfully functionally decompose, prototype and demonstrate FACE conformant applications and FACE compatible operating environments. Develop technical specifications for Hardware Open System Technologies (HOST). Prototype and demonstrate HOST avionics components.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Navy			Date: February 2015
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604215N / *Standards Development*	Project (Number/Name) 0572 / *JT Service/NV Std Avionics CP/SB*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary Hardware Dev CNS/ATM	TBD	TBD : TBD	0.000	-		-		1.604	May 2016	-		1.604	5.024	6.628	6.628
Primary Hardware Dev GPWS	SS/CPIF	Lockheed Martin : Owego, NY	0.000	6.206	Sep 2014	-		-		-		-	-	6.206	6.206
Primary Hardware Dev MFOQA	SS/CPIF	Mantech : Fairfax, VA	35.834	4.058	Mar 2014	0.225	Mar 2015	-		-		-	-	40.117	40.117
Primary Hardware Dev MFOQA	SS/CPFF	BGI : Akron, OH	14.144	5.607	Apr 2014	0.225	May 2015	-		-		-	-	19.976	19.976
Primary Hardware Dev AvCIP	SS/CPFF	Boeing : St. Louis, MO	0.000	1.911	Dec 2013	-		-		-		-	-	1.911	1.911
Primary Hardware Dev ADDS	SS/BOA	Physical Optics Corporation : Torrance, CA	7.624	8.999	Aug 2014	-		-		-		-	-	16.623	16.623
Primary Hardware Dev ADDS	SS/BOA	Boeing : St. Louis, MO	0.000	1.495	Jul 2014	-		-		-		-	-	1.495	1.495
Primary Hardware Dev	WR	NAWCAD : Patuxent River, MD	1.557	2.055	Dec 2013	2.107	Dec 2014	2.284	Dec 2015	-		2.284	Continuing	Continuing	Continuing
Primary Hardware Dev	Various	Various : Various	61.412	-		4.144	Mar 2015	4.655	Mar 2016	-		4.655	Continuing	Continuing	Continuing
Aircraft Integration TACCOM	SS/FFP	Rockwell Collins : Cedar Rapids, IA	57.049	-		7.173	Mar 2015	6.161	Mar 2016	-		6.161	Continuing	Continuing	Continuing
Aircraft Integration GPWS	SS/CPIF	Lockheed Martin : Owego, NY	0.000	-		-		1.015	Mar 2016	-		1.015	Continuing	Continuing	Continuing
Systems Engineering MFOQA	WR	NSWC Carderock : Bethesda, MD	0.934	1.461	Mar 2014	0.467	Mar 2015	-		-		-	-	2.862	-
Systems Engineering	WR	NAWCAD : Patuxent River, MD	28.073	3.564	Dec 2013	3.069	Dec 2014	2.293	Dec 2015	-		2.293	Continuing	Continuing	Continuing
Systems Engineering AAT	MIPR	DTIC : Ft. Belvoir, Va	0.000	-		11.246	Mar 2015	2.884	Mar 2016	-		2.884	-	14.130	-
Systems Engineering	Various	Various : Various	0.075	0.539	Mar 2014	1.100	Mar 2015	-		-		-	-	1.714	-
Prior year Prod Dev costs no longer funded in FYDP	Various	Various : Various	380.705	-		-		-		-		-	-	380.705	-
		Subtotal	587.407	35.895		29.756		20.896		-		20.896	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Navy			Date: February 2015
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604215N / *Standards Development*	Project (Number/Name) 0572 / *JT Service/NV Std Avionics CP/SB*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Software Development TACCOM	TBD	Rockwell Collins : Cedar Rapids, IA	0.000	-		-		3.560	Dec 2015	-		3.560	Continuing	Continuing	Continuing
Integrated Logistics Support	WR	NAWCAD : Patuxent River, MD	16.884	1.313	Dec 2013	1.681	Dec 2014	1.127	Dec 2015	-		1.127	Continuing	Continuing	Continuing
Studies and Analysis	Various	Various : Various	18.505	1.593	Jul 2014	-		0.091	Mar 2016	-		0.091	-	20.189	-
Prior year Support costs no longer funded in FYDP	Various	Various : Various	34.557	-		-		-		-		-	-	34.557	-
		Subtotal	69.946	2.906		1.681		4.778		-		4.778	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test and Evaluation	Various	Various : Various	10.286	3.582	Apr 2014	0.543	Apr 2015	0.504	Apr 2016	-		0.504	Continuing	Continuing	Continuing
Prior year T&E costs no longer funded in FYDP	Various	Various : Various	39.111	-		-		-		-		-	-	39.111	-
		Subtotal	49.397	3.582		0.543		0.504		-		0.504	-	-	-

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Contractor Engineering Support	Various	Various : Various	69.260	5.060	Jul 2014	5.387	Jun 2015	7.866	Dec 2015	-		7.866	Continuing	Continuing	Continuing
Government Engineering Support	WR	NAWCAD : Patuxent River, MD	21.951	1.411	Mar 2014	1.924	Mar 2015	2.459	Mar 2016	-		2.459	Continuing	Continuing	Continuing
Program Management Support	WR	NAWCAD : Patuxent River, MD	19.855	3.356	Mar 2014	2.861	Mar 2015	3.305	Mar 2016	-		3.305	Continuing	Continuing	Continuing
Travel	WR	NAVAIR : Patuxent River, MD	1.165	0.074	Nov 2013	0.108	Nov 2014	0.082	Nov 2015	-		0.082	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Navy			Date: February 2015
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604215N / *Standards Development*	Project (Number/Name) 0572 / *JT Service/NV Std Avionics CP/SB*	

Management Services ($ in Millions)

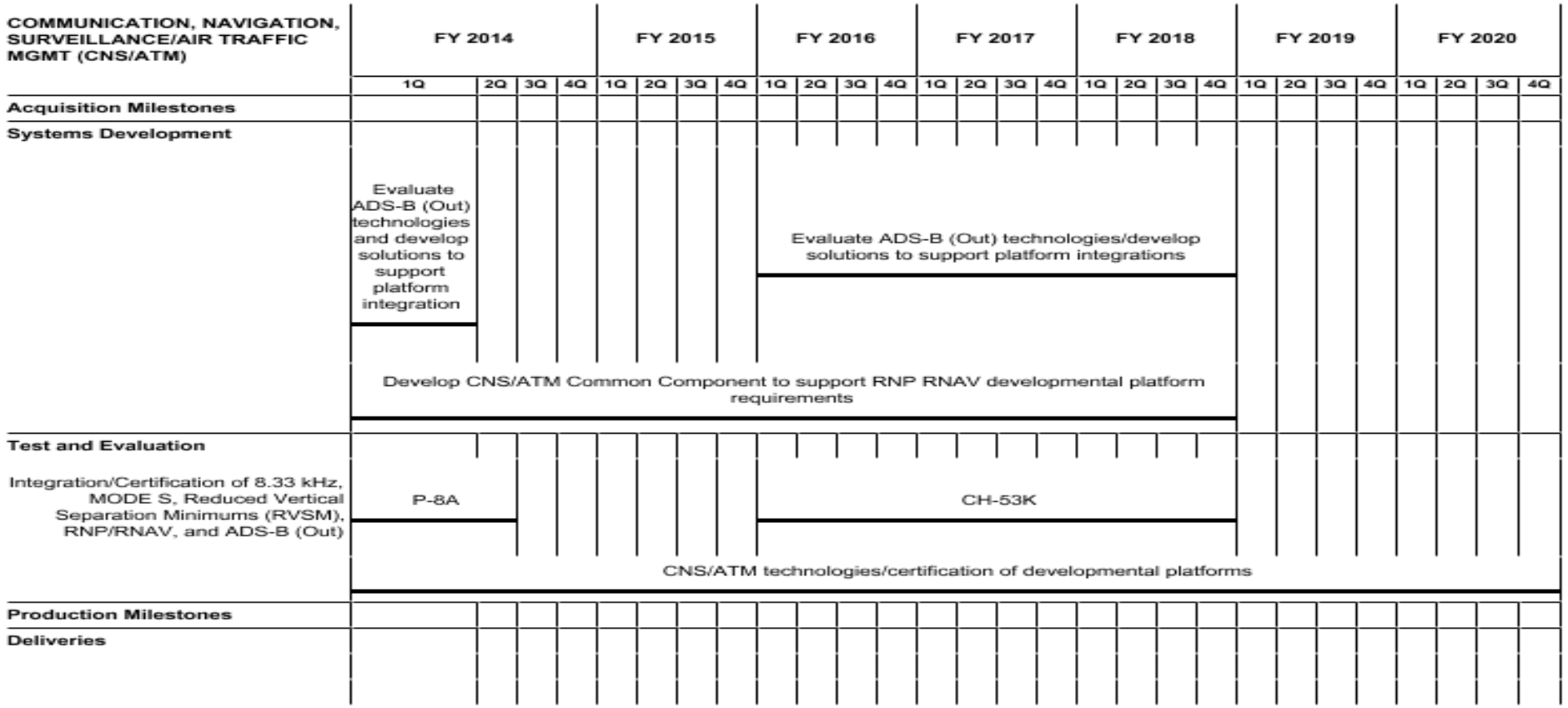
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Prior year Mgmt costs no longer funded in FYDP	Various	Various : Various	21.536	-		-		-		-		-	-	21.536	-
		Subtotal	133.767	9.901		10.280		13.712		-		13.712	-	-	-

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	840.517	52.284		42.260		39.890		-		39.890	-	-	-

Remarks

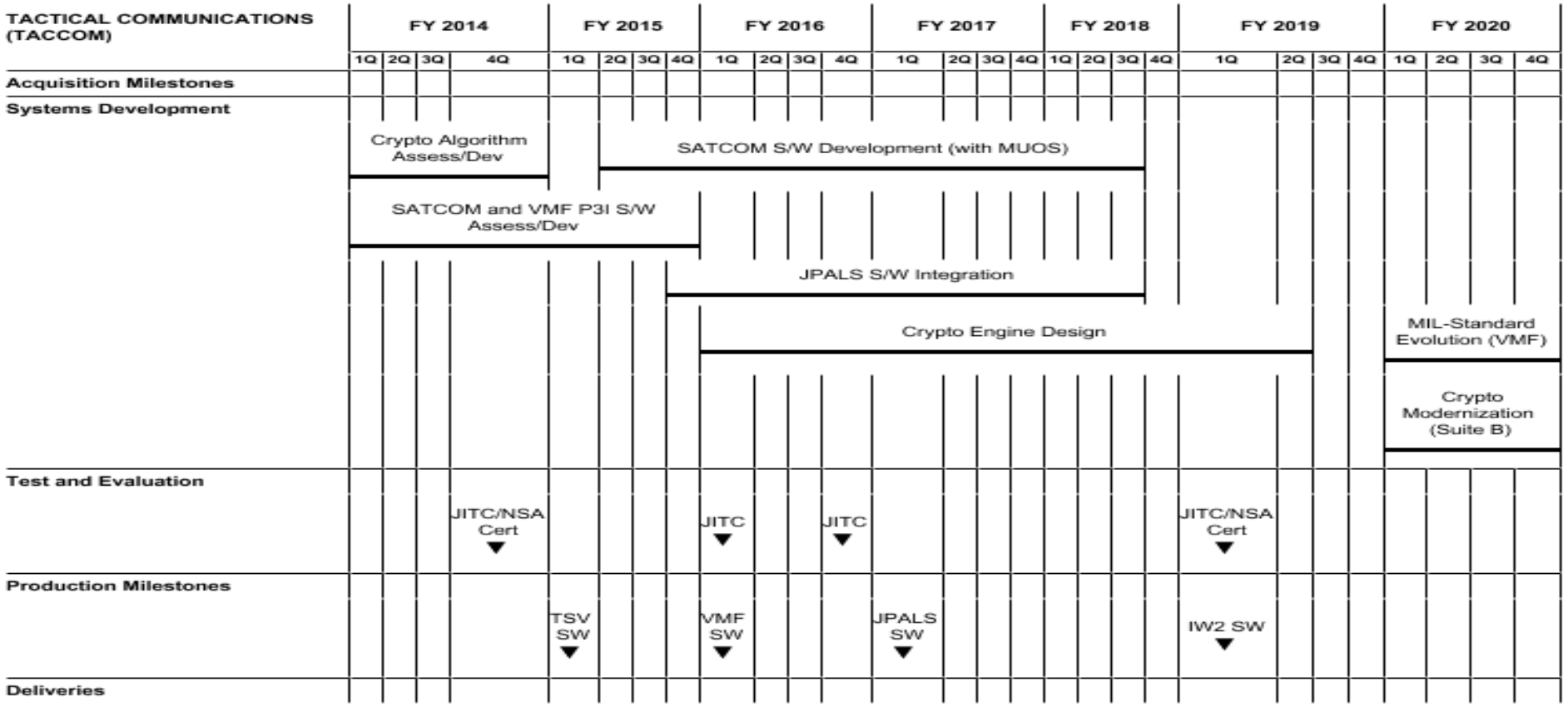
Prior Year costs from OSD16 to PB16 have been adjusted to reflect actuals. Total cost remains the same.

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604215N / *Standards Development*	**Project (Number/Name)** 0572 / *JT Service/NV Std Avionics CP/SB*



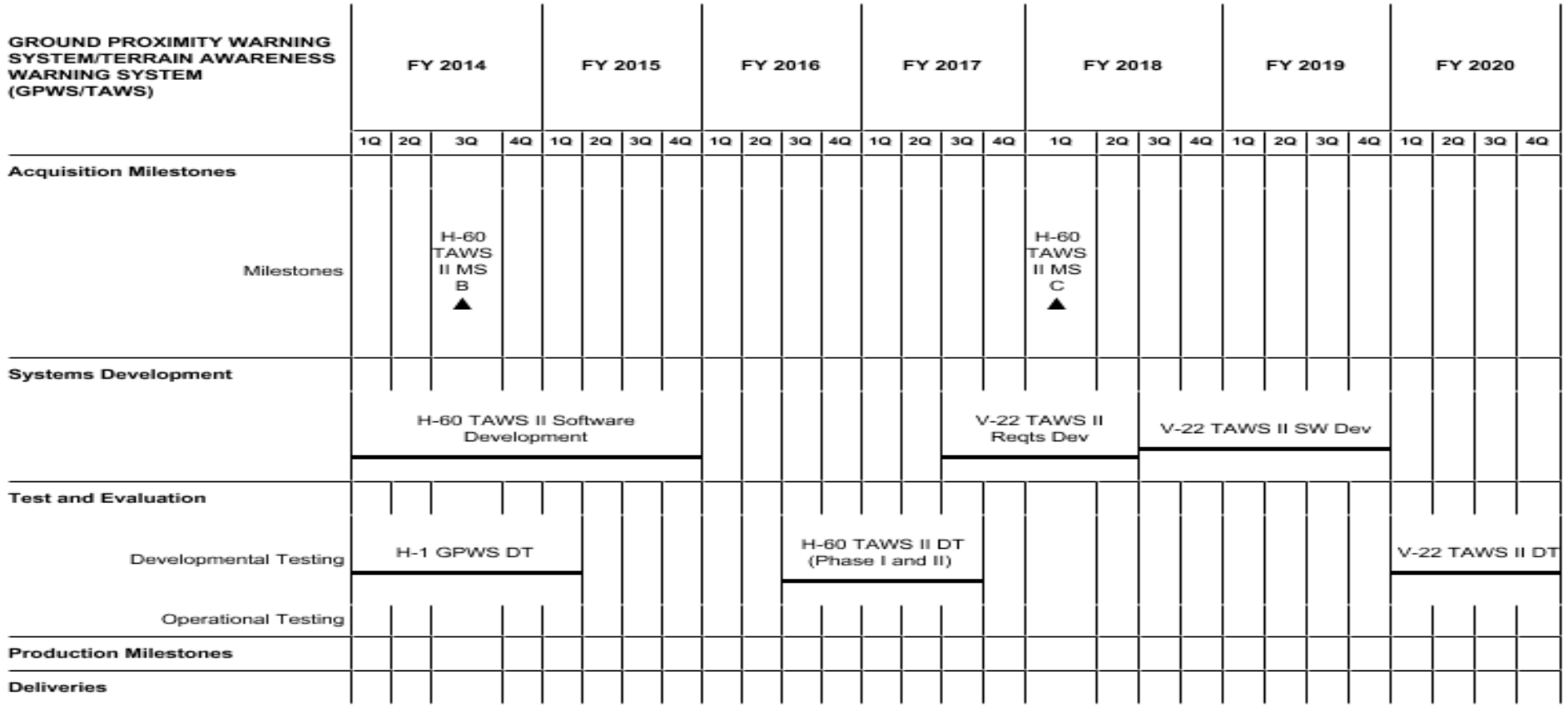
2016PB - 0604215N - 0572

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604215N / *Standards Development*	**Project (Number/Name)** 0572 / *JT Service/NV Std Avionics CP/SB*



2016PB - 0604215N - 0572

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604215N / *Standards Development*	**Project (Number/Name)** 0572 / *JT Service/NV Std Avionics CP/SB*



2016PB - 0604215N - 0572

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Navy		Date: February 2015
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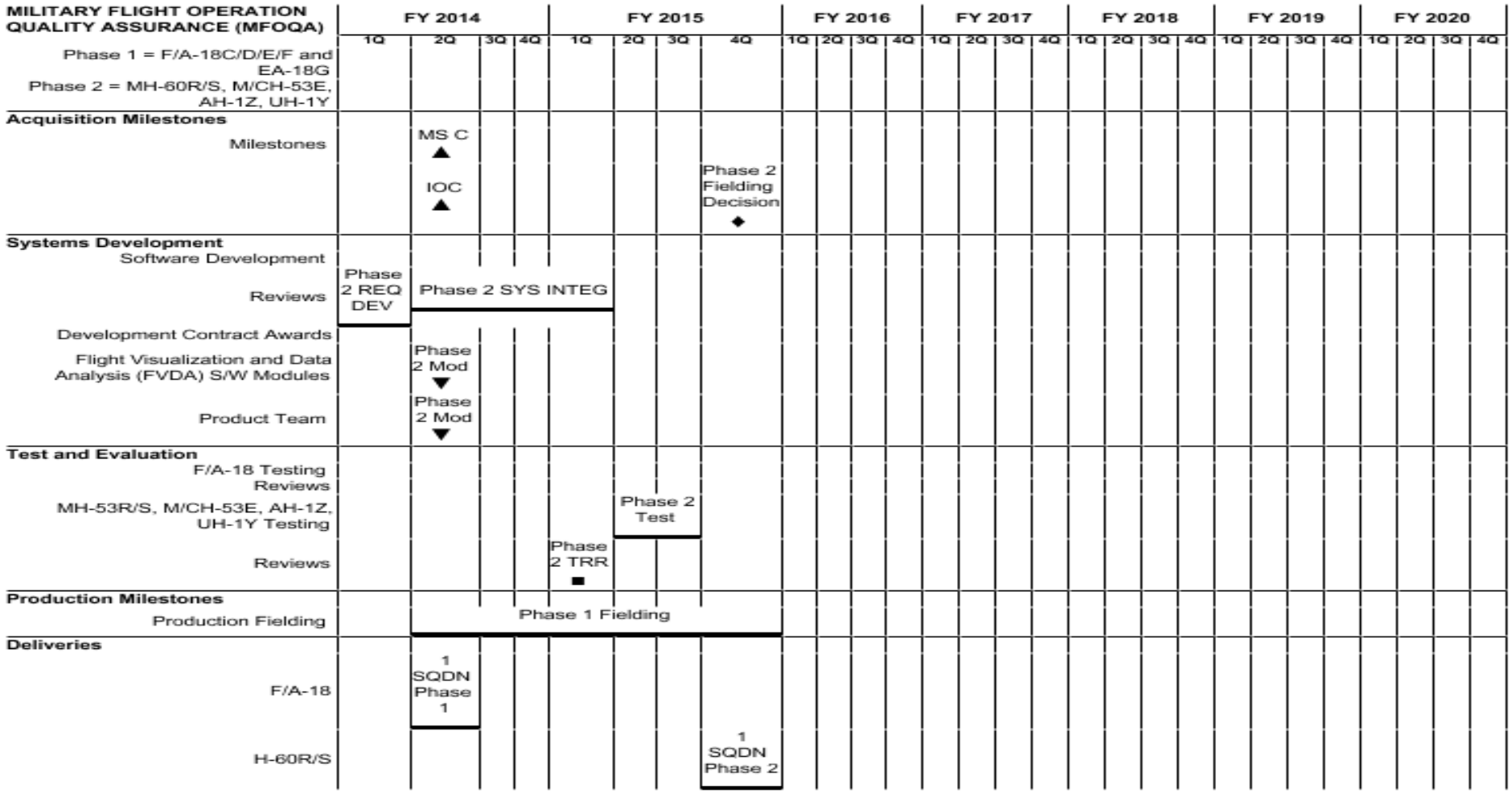

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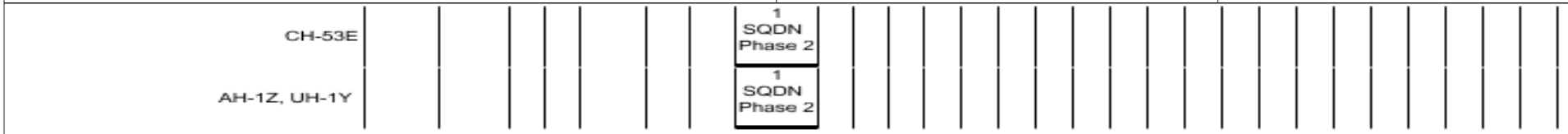

2016PB - 0604215N - 0572

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Navy		Date: February 2015
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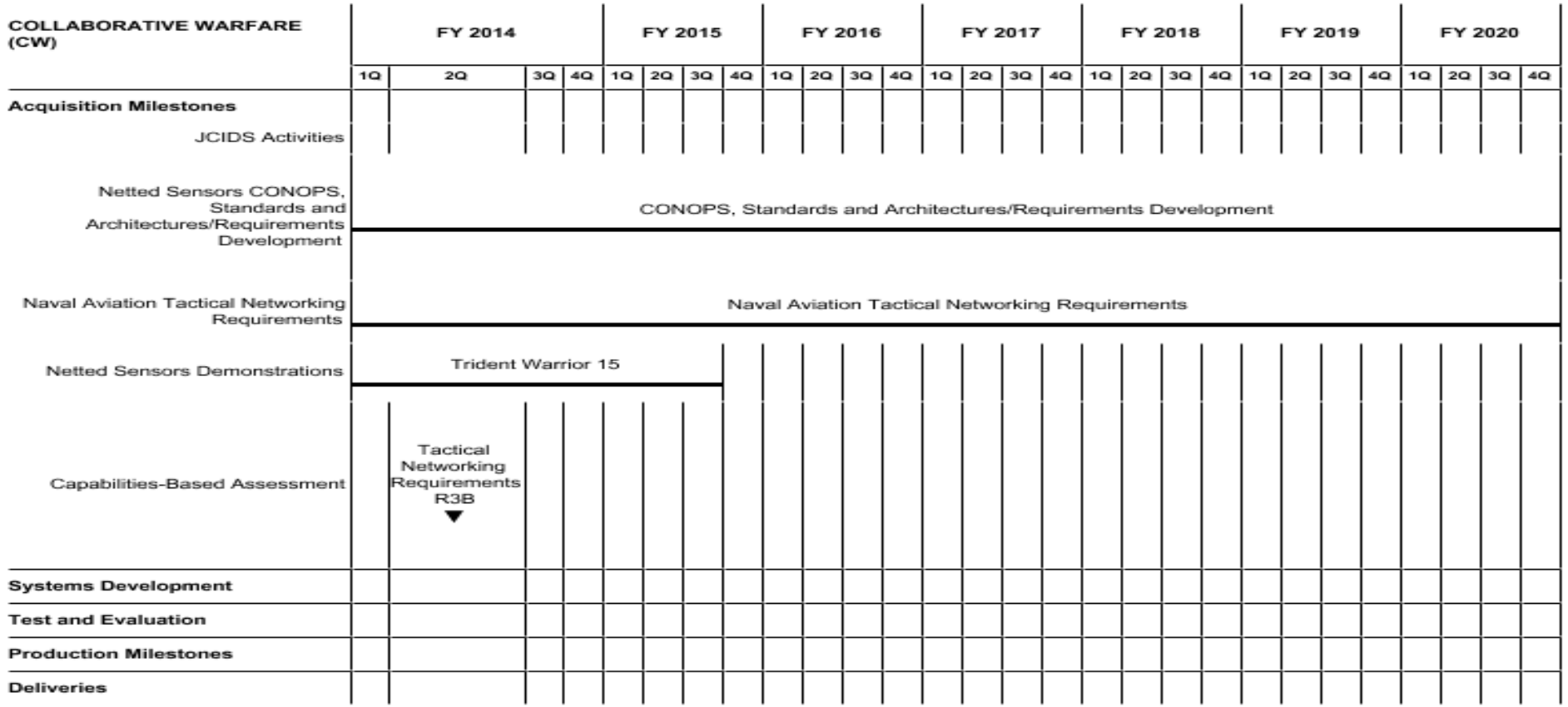
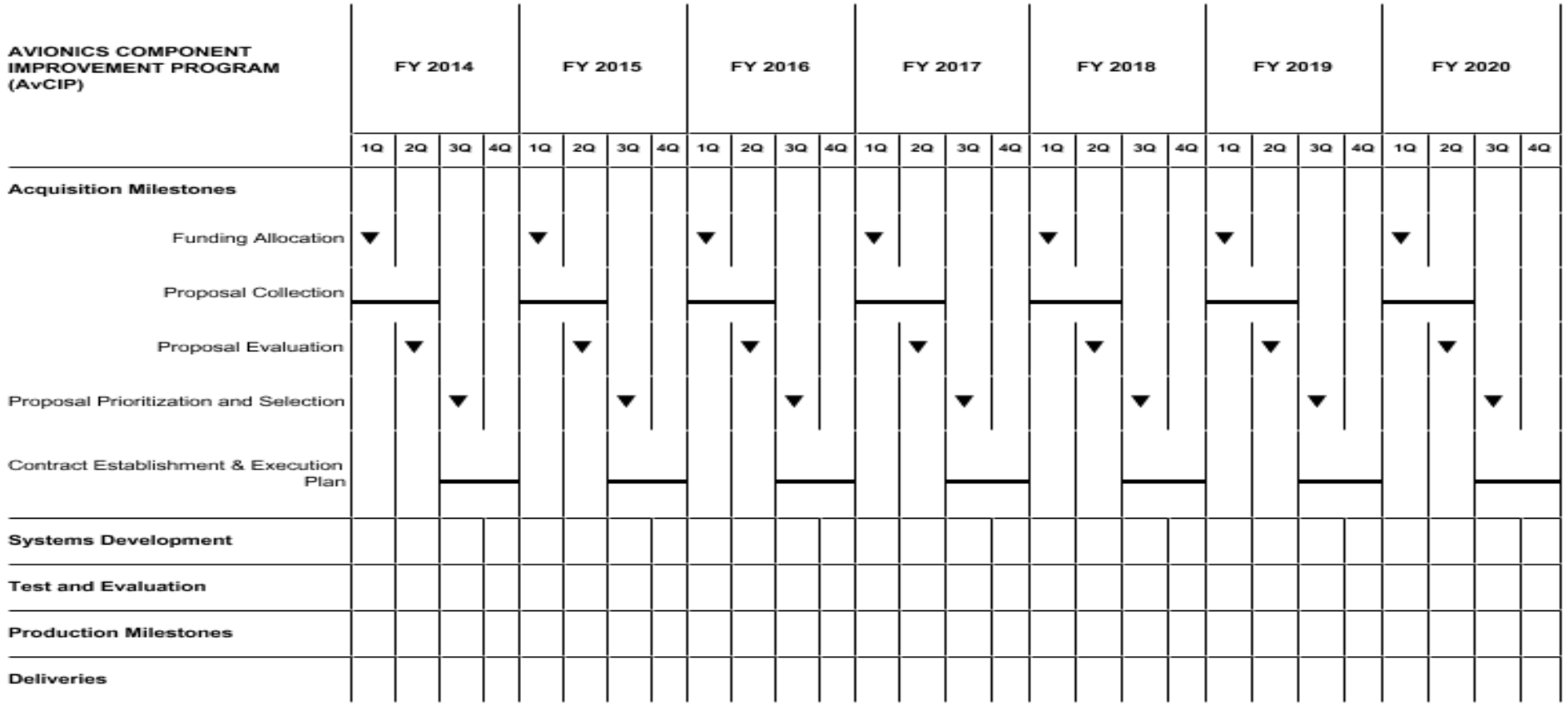


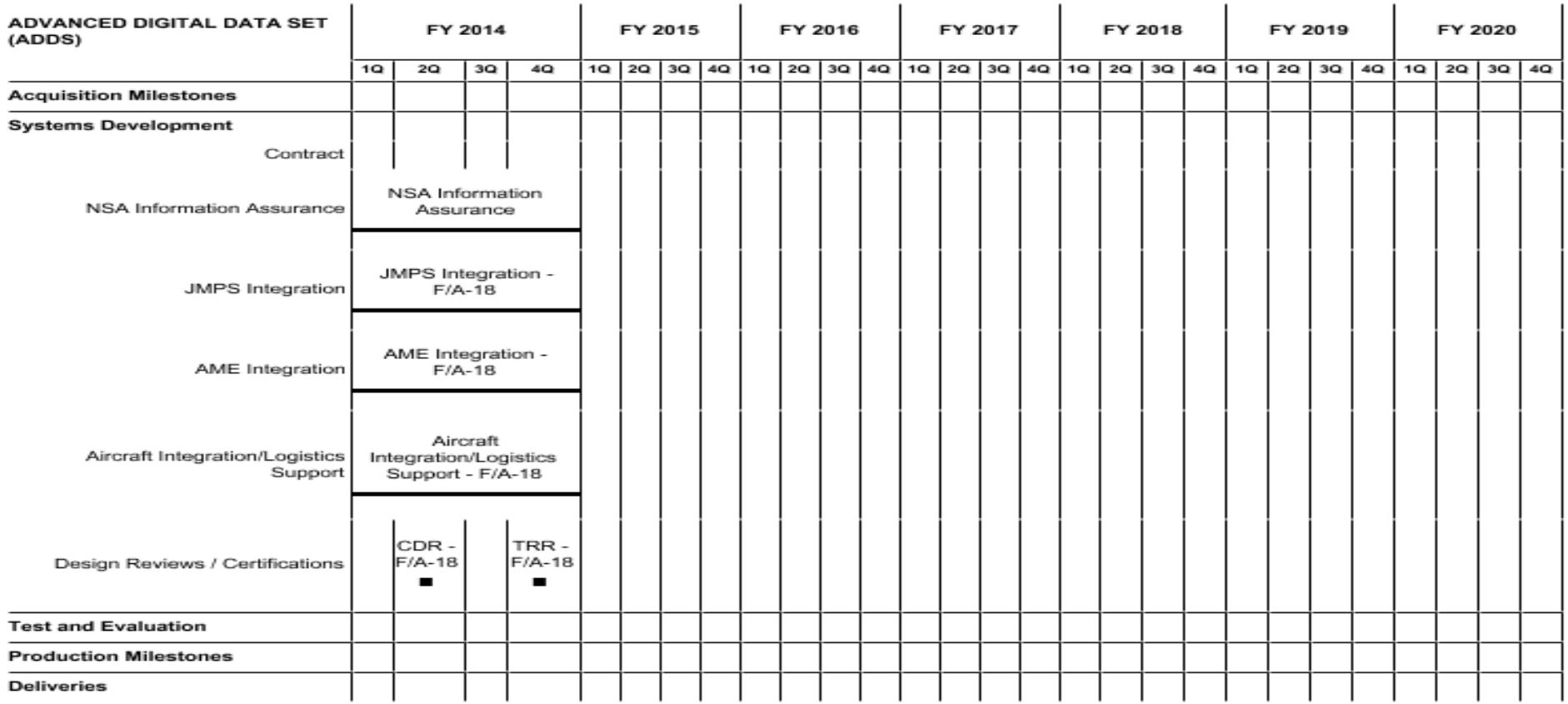
2016PB - 0604215N - 0572

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604215N / *Standards Development*	**Project (Number/Name)** 0572 / *JT Service/NV Std Avionics CP/SB*



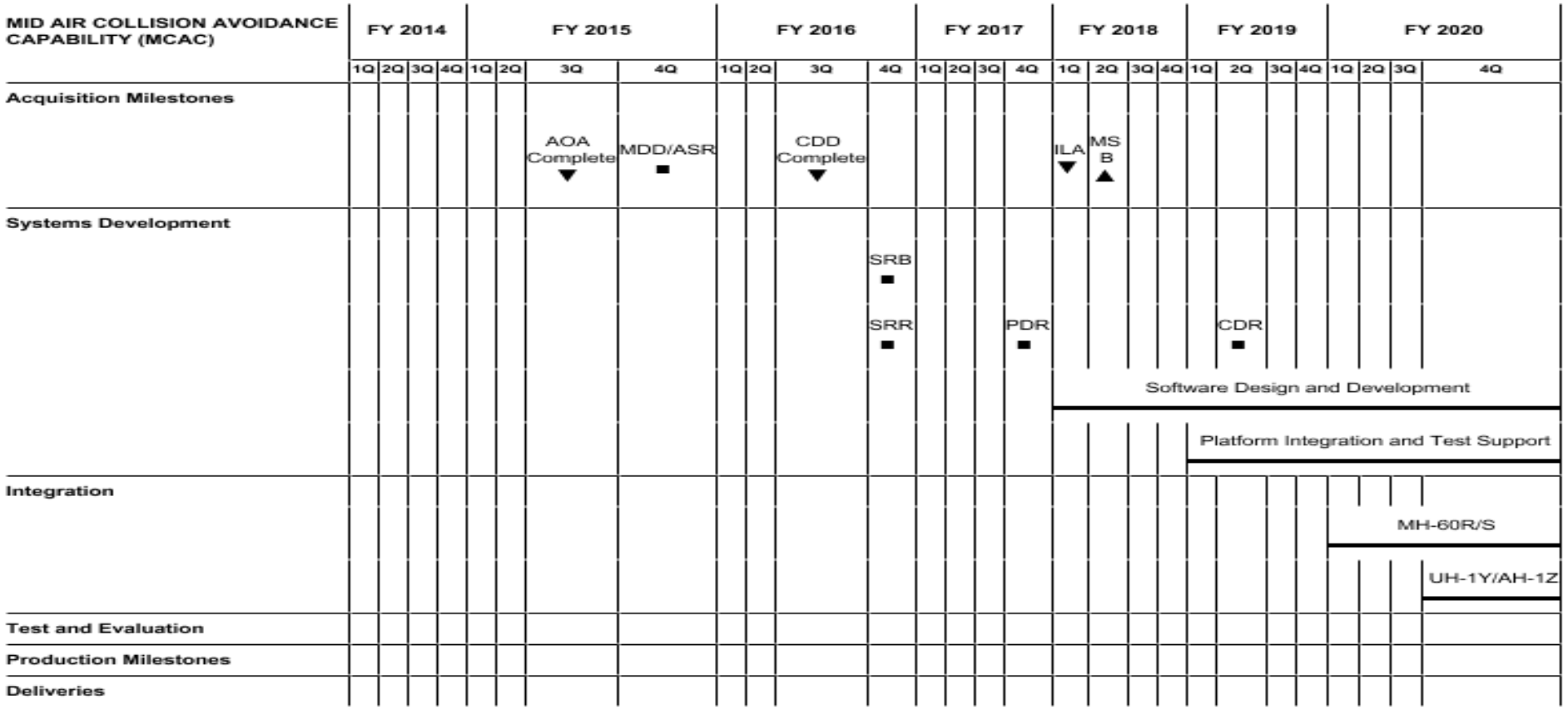
2016PB - 0604215N - 0572

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604215N / *Standards Development*	**Project (Number/Name)** 0572 / *JT Service/NV Std Avionics CP/SB*



2016PB - 0604215N - 0572

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604215N / *Standards Development*	**Project (Number/Name)** 0572 / *JT Service/NV Std Avionics CP/SB*



2016PB - 0604215N - 0572

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604215N / *Standards Development*	**Project (Number/Name)** 0572 / *JT Service/NV Std Avionics CP/SB*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
COMMUNICATION, NAVIGATION, SURVEILLANCE/AIR TRAFFIC MGMT (CNS/ATM)				
Systems Development: Evaluate ADS-B (Out) technologies and develop solutions to support platform integration	1	2014	1	2014
Systems Development: Evaluate ADS-B (Out) technologies and develop solutions to support platform integrations	1	2016	4	2018
Systems Development: Develop CNS/ATM Common Component to support RNP RNAV developmental platform requirements	1	2014	4	2018
Test and Evaluation: Integration/Certification of 8.33 kHz, MODE S, Reduced Vertical Separation Minimums (RVSM), RNP/RNAV, and ADS-B (Out): Integration/Cert 8.33 kHz, MODE S, RVSM, RNP RNAV P-8	1	2014	2	2014
Test and Evaluation: Integration/Certification of 8.33 kHz, MODE S, Reduced Vertical Separation Minimums (RVSM), RNP/RNAV, and ADS-B (Out): Integration/Cert 8.33 kHz, MODE S, RVSM, RNP RNAV CH-53K	1	2016	4	2018
Test and Evaluation: Integration/Certification of 8.33 kHz, MODE S, Reduced Vertical Separation Minimums (RVSM), RNP/RNAV, and ADS-B (Out): Integration/Cert 8.33 kHz, MODE S, RVSM, RNP RNAV	1	2014	4	2020
TACTICAL COMMUNICATIONS (TACCOM)				
Systems Development: GEN 5 Integrated Waveform Satellite Communications (SATCOM) S/W Development Phase 2	2	2015	3	2018
Systems Development: GEN 5 Crypto Algorithm Assessment/Development	1	2014	4	2014
Systems Development: GEN 5 SATCOM P3I S/W Assessment/Development	1	2014	4	2015
Systems Development: Joint Precision Approach Landing System (S/W) Integration	4	2015	3	2018
Systems Development: Crypto Engine Design	1	2016	2	2019
Systems Development: MIL-Standard Evolution (VMF)	1	2020	4	2020
Systems Development: Crypto Modernization (Suite B)	1	2020	4	2020

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604215N / *Standards Development*	**Project (Number/Name)** 0572 / *JT Service/NV Std Avionics CP/SB*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Test and Evaluation: GEN 5 JITC Certification2	4	2014	4	2014
Test and Evaluation: GEN 5 JTIC Certification3	1	2016	1	2016
Test and Evaluation: GEN 5 JITC Certification4	4	2016	4	2016
Test and Evaluation: GEN 5 JITC Certification5	1	2019	1	2019
Production Milestones: GEN 5 Evol S/W Release5	1	2015	1	2015
Production Milestones: GEN 5 Evol S/W Release6	1	2016	1	2016
Production Milestones: GEN 5 Evol S/W Release7	1	2017	1	2017
Production Milestones: GEN 5 Evol S/W Release8	1	2019	1	2019
GROUND PROXIMITY WARNING SYSTEM/TERRAIN AWARENESS WARNING SYSTEM (GPWS/TAWS)				
Acquisition Milestones: Milestones: H-60 TAWS II MS B	3	2014	3	2014
Acquisition Milestones: Milestones: H-60 TAWS II MS C	1	2018	1	2018
Systems Development: H-60 TAWS II Software Development	1	2014	4	2015
Systems Development: V-22 TAWS II Reqts Dev	3	2017	2	2018
Systems Development: V-22 TAWS II SW Dev	3	2018	4	2019
Test and Evaluation: Developmental Testing: H-1 GPWS DT	1	2014	1	2015
Test and Evaluation: Developmental Testing: H-60 TAWS II DT (Phase I and II)	3	2016	3	2017
Test and Evaluation: Developmental Testing: V-22 TAWS II DT	1	2020	4	2020
MILITARY FLIGHT OPERATION QUALITY ASSURANCE (MFOQA)				
Acquisition Milestones: Milestones: Milestone C (MS C)	2	2014	2	2014
Acquisition Milestones: Milestones: IOC	2	2014	2	2014
Acquisition Milestones: Milestones: Phase 2 Fielding Decision	4	2015	4	2015
Systems Development: Reviews: Phase 2 Req Dev	1	2014	1	2014
Systems Development: Reviews: Phase 2 Sys Integration	2	2014	1	2015
Systems Development: Flight Visualization and Data Analysis (FVDA) S/W Modules: Phase 2 Mod	2	2014	2	2014
Systems Development: Product Team: Phase 2 Mod	2	2014	2	2014

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604215N / *Standards Development*	**Project (Number/Name)** 0572 / *JT Service/NV Std Avionics CP/SB*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Test and Evaluation: MH-53R/S, M/CH-53E, AH-1Z, UH-1Y Testing: Phase 2 Test	2	2015	3	2015
Test and Evaluation: Reviews: Phase 2 TRR	1	2015	1	2015
Production Milestones: Production Fielding: Phase 1 Fielding	2	2014	4	2015
Deliveries: F/A-18: 1 Squadron R&D	2	2014	2	2014
Deliveries: H-60R/S: 1 Squadron R&D	4	2015	4	2015
Deliveries: CH-53E: 1 Squadron R&D	4	2015	4	2015
Deliveries: AH-1Z, UH-1Y: 1 Squadron R&D	4	2015	4	2015
COLLABORATIVE WARFARE (CW)				
Acquisition Milestones: Netted Sensors CONOPS, Standards and Architectures/ Requirements Development: Netted Sensors CONOPS, Standards, and Architectures/ Requirements Development	1	2014	4	2020
Acquisition Milestones: Naval Aviation Tactical Networking Requirements: Naval Aviation Tactical Networking Requirements	1	2014	4	2020
Acquisition Milestones: Netted Sensors Demonstrations: Trident Warrior 15	1	2014	3	2015
Acquisition Milestones: Capabilities-Based Assessment: Tactical Networking Requirements R3B	2	2014	2	2014
ADVANCED DIGITAL DATA SET (ADDS)				
Systems Development: NSA Information Assurance: NSA Effort - F/A-18	1	2014	4	2014
Systems Development: JMPS Integration: JMPS Integration - F/A-18	1	2014	4	2014
Systems Development: AME Integration: AME Integration - F/A-18	1	2014	4	2014
Systems Development: Aircraft Integration/Logistics Support: Aircraft Integration/ Logistics Support - F/A-18	1	2014	4	2014
Systems Development: Design Reviews / Certifications: CDR - F/A-18	2	2014	2	2014
Systems Development: Design Reviews / Certifications: TRR - F/A-18	4	2014	4	2014
MID AIR COLLISION AVOIDANCE CAPABILITY (MCAC)				
Acquisition Milestones: ILA	1	2018	1	2018
Acquisition Milestones: AOA Complete	3	2015	3	2015

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604215N / *Standards Development*	**Project (Number/Name)** 0572 / *JT Service/NV Std Avionics CP/SB*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Acquisition Milestones: CDD Complete	3	2016	3	2016
Acquisition Milestones: MDD/ASR	4	2015	4	2015
Acquisition Milestones: MS B	2	2018	2	2018
Systems Development: SRB	4	2016	4	2016
Systems Development: SRR	4	2016	4	2016
Systems Development: PDR	4	2017	4	2017
Systems Development: CDR	2	2019	2	2019
Systems Development: Software Design and Development	1	2018	4	2020
Systems Development: Platform Integration and Test Support	1	2019	4	2020
Integration: MH-60R/S	1	2020	4	2020
Integration: UH-1Y/AH-1Z	4	2020	4	2020
AVIONICS COMPONENT IMPROVEMENT PROGRAM (AvCIP)				
Acquisition Milestones: Funding Allocation: Funding Allocation 14	1	2014	1	2014
Acquisition Milestones: Funding Allocation: Funding Allocation 15	1	2015	1	2015
Acquisition Milestones: Funding Allocation: Funding Allocation 16	1	2016	1	2016
Acquisition Milestones: Funding Allocation: Funding Allocation 17	1	2017	1	2017
Acquisition Milestones: Funding Allocation: Funding Allocation 18	1	2018	1	2018
Acquisition Milestones: Funding Allocation: Funding Allocation 19	1	2019	1	2019
Acquisition Milestones: Funding Allocation: Funding Allocation 20	1	2020	1	2020
Acquisition Milestones: Proposal Collection: Proposal Collection 14	1	2014	2	2014
Acquisition Milestones: Proposal Collection: Proposal Collection 15	1	2015	2	2015
Acquisition Milestones: Proposal Collection: Proposal Collection 16	1	2016	2	2016
Acquisition Milestones: Proposal Collection: Proposal Collection 17	1	2017	2	2017
Acquisition Milestones: Proposal Collection: Proposal Collection 18	1	2018	2	2018
Acquisition Milestones: Proposal Collection: Proposal Collection 19	1	2019	2	2019
Acquisition Milestones: Proposal Collection: Proposal Collection 20	1	2020	2	2020

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604215N / *Standards Development*	**Project (Number/Name)** 0572 / *JT Service/NV Std Avionics CP/SB*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Acquisition Milestones: Proposal Evaluation: Proposal Evaluation 14	2	2014	2	2014
Acquisition Milestones: Proposal Evaluation: Proposal Evaluation 15	2	2015	2	2015
Acquisition Milestones: Proposal Evaluation: Proposal Evaluation 16	2	2016	2	2016
Acquisition Milestones: Proposal Evaluation: Proposal Evaluation 17	2	2017	2	2017
Acquisition Milestones: Proposal Evaluation: Proposal Evaluation 18	2	2018	2	2018
Acquisition Milestones: Proposal Evaluation: Proposal Evaluation 19	2	2019	2	2019
Acquisition Milestones: Proposal Evaluation: Proposal Evaluation 20	2	2020	2	2020
Acquisition Milestones: Proposal Prioritization and Selection: Proposal Prioritization and Selection 14	3	2014	3	2014
Acquisition Milestones: Proposal Prioritization and Selection: Proposal Prioritization and Selection 15	3	2015	3	2015
Acquisition Milestones: Proposal Prioritization and Selection: Proposal Prioritization and Selection 16	3	2016	3	2016
Acquisition Milestones: Proposal Prioritization and Selection: Proposal Prioritization and Selection 17	3	2017	3	2017
Acquisition Milestones: Proposal Prioritization and Selection: Proposal Prioritization and Selection 18	3	2018	3	2018
Acquisition Milestones: Proposal Prioritization and Selection: Proposal Prioritization and Selection 19	3	2019	3	2019
Acquisition Milestones: Proposal Prioritization and Selection: Proposal Prioritization and Selection 20	3	2020	3	2020
Acquisition Milestones: Contract Establishment & Execution Plan: Contract Establishment & Execution Plan 14	3	2014	4	2014
Acquisition Milestones: Contract Establishment & Execution Plan: Contract Establishment & Execution Plan 15	3	2015	4	2015
Acquisition Milestones: Contract Establishment & Execution Plan: Contract Establishment & Execution Plan 16	3	2016	4	2016
Acquisition Milestones: Contract Establishment & Execution Plan: Contract Establishment & Execution Plan 17	3	2017	4	2017

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604215N / *Standards Development*	**Project (Number/Name)** 0572 / *JT Service/NV Std Avionics CP/SB*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Acquisition Milestones: Contract Establishment & Execution Plan: Contract Establishment & Execution Plan 18	3	2018	4	2018
Acquisition Milestones: Contract Establishment & Execution Plan: Contract Establishment & Execution Plan 19	3	2019	4	2019
Acquisition Milestones: Contract Establishment & Execution Plan: Contract Establishment & Execution Plan 20	3	2020	4	2020

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy			Date: February 2015
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604215N / *Standards Development*	Project (Number/Name) 1857 / *Calibration Standards*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
1857: *Calibration Standards*	10.734	1.830	1.582	1.653	-	1.653	1.692	1.712	1.751	1.786	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

OPNAV sponsored (by instruction), Navy-wide program which addresses Metrology related RDT&E issues for navy weapon systems, shipboard platforms, Naval Air, and Fleet Ground Marines. It supports development of calibration standards (equipment, procedures and technical data) required to resolve Metcal related safety, obsolescence, new and emerging technology support and cost reduction issues. It funds Navy unique and lead service responsibilities in DoD and Joint Services Metrology Research Programs to develop calibration solutions. The line supports development of measurement requirements to verify performance of all test systems used to validate the operation of Navy weapon Systems with calibration standards traceable to the National Institute of Standards and Technology to calibrate, sustain and ensure performance accuracy.

This program also provides benefits and efficiencies in a joint collaborative environment within the Tri-Services. Projects are identified and defined so that they will meet the universal requirement. Development efforts are integrated in order to achieve the common capabilities required at minimum cost. This is also a regular and common business practice within the Navy Metrology Community where R&D efforts are communicated and integrated into the multiple testing and Monitoring Systems. This is done in support of Program Managers, Sponsors, and Principle Executive officers. As a result, common requirements are established, duplication of efforts are eliminated, and best value, high quality Metcal products are produced for the Navy.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Title: Calibration Standards	1.830	1.582	1.653	-	1.653
Articles:	-	-	-	-	-
FY 2014 Accomplishments:					
($.632) Transition calibration standards in support of electro optical standards (hardware) in support of safety of flight operations.					
($.867) Continue development of calibration standards (hardware) in support of chemical and biological detection systems (chemical warfare agent detection systems).					
($.331) Continue development of analytical metrology (processes) in support of automated interval and uncertainty analysis.					
FY 2015 Plans:					
($.907) Continue development calibration standards in support of electro optical standards (hardware) in support of safety of flight operations.					

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604215N / *Standards Development*	**Project (Number/Name)** 1857 / *Calibration Standards*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
($.428) Continue development of calibration standards (hardware) in support of Physical Mechanical standards in support of Shipboard Flight Operations and NAVAIR Oxygen systems. ($.247) Continue development of analytical metrology (processes) in support of automated interval and uncertainty analysis. ***FY 2016 Base Plans:*** ($1.287) Continue development calibration standards in support of electro optical standards (hardware) in support of safety of flight operations. ($.256) Continue development of calibration standards (hardware) in support of Physical Mechanical standards in support of Shipboard Flight Operations and NAVAIR Oxygen systems. ($.110) Continue development of analytical metrology (processes) in support of automated interval and uncertainty analysis. ***FY 2016 OCO Plans:*** N/A					
Accomplishments/Planned Programs Subtotals	1.830	1.582	1.653	-	1.653

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Funds provide for in-service engineering initiation of metrology research and developmental efforts of unique non-commercial hardware standards in the development of six key thrust technological areas which correspond to Physical Mechanical, Electro-Optical, Analytical Metrology, Electrical/Electronic systems, Chembio Defense, Microwave/Millimeter wave . These standards will ensure measurement accuracy in advanced and emerging combat weapon systems and associated test equipment. These hardware test standards will also provide for cost effective and efficient system maintenance and calibration measurements that reduce wrong test decisions and will result in lower maintenance cost and higher system performance reliability.

E. Performance Metrics

The U.S. Navy Metrology RDT&E Program will transition 1 project during FY16 in the technology area of Analytical metrology in new calibration hardware and processes. The Program will continue the research and development of 3 projects in progress in the technology areas of Physical Mechanical and Electro Optical for the

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604215N / *Standards Development*	**Project (Number/Name)** 1857 / *Calibration Standards*

purpose of ensuring measurement accuracy in new emerging technology measurement requirements of Navy weapon systems. Success measures will be articulated through program goals and a balance score card strategy system.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Navy			Date: February 2015
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604215N / *Standards Development*	Project (Number/Name) 1857 / *Calibration Standards*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary Hardware Development	WR	NSWC Corona : Corona, CA	4.996	0.322	Mar 2014	-		0.093	Oct 2015	-		0.093	Continuing	Continuing	Continuing
		Subtotal	4.996	0.322		-		0.093		-		0.093	-	-	-

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Contractor Engineering Support	WR	NSWC Corona : Corona, CA	1.716	0.200	Dec 2013	0.151	Oct 2014	0.271	Oct 2015	-		0.271	-	2.338	-
Government Engineering Support	WR	NSWC Corona : Corona, CA	3.860	1.283	Oct 2013	1.416	Oct 2014	1.274	Oct 2015	-		1.274	-	7.833	-
Defense Acquisition Workforce	Various	Various : Various	0.007	-		-		-		-		-	-	0.007	-
Travel	WR	NSWC Corona : Corona, CA	0.155	0.025	Oct 2013	0.015	Oct 2014	0.015	Oct 2015	-		0.015	-	0.210	-
		Subtotal	5.738	1.508		1.582		1.560		-		1.560	-	10.388	-

	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	10.734	1.830		1.582		1.653		-		1.653	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604215N / *Standards Development*	**Project (Number/Name)** 1857 / *Calibration Standards*

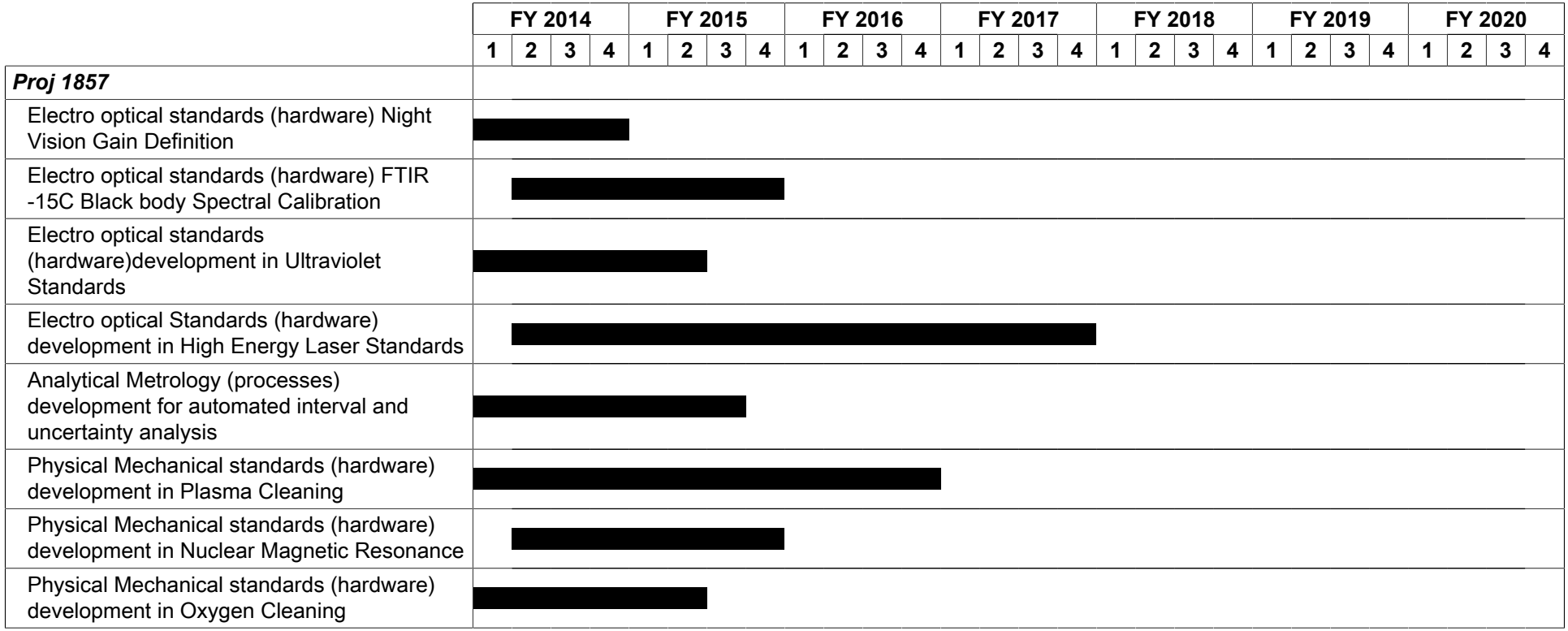


Exhibit R-4A, RDT&E Schedule Details: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604215N / *Standards Development*	**Project (Number/Name)** 1857 / *Calibration Standards*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 1857				
Electro optical standards (hardware) Night Vision Gain Definition	1	2014	4	2014
Electro optical standards (hardware) FTIR -15C Black body Spectral Calibration	2	2014	4	2015
Electro optical standards (hardware)development in Ultraviolet Standards	1	2014	2	2015
Electro optical Standards (hardware) development in High Energy Laser Standards	2	2014	4	2017
Analytical Metrology (processes) development for automated interval and uncertainty analysis	1	2014	3	2015
Physical Mechanical standards (hardware) development in Plasma Cleaning	1	2014	4	2016
Physical Mechanical standards (hardware) development in Nuclear Magnetic Resonance	2	2014	4	2015
Physical Mechanical standards (hardware) development in Oxygen Cleaning	1	2014	2	2015

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy			Date: February 2015
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604215N / *Standards Development*	Project (Number/Name) 2311 / *Stores Planning and Weaponeering Module*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
2311: *Stores Planning and Weaponeering Module*	147.198	11.956	9.305	10.941	-	10.941	13.125	12.101	11.874	12.120	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Project 2311, Stores Planning and Weaponeering Module: The Naval Aircraft Weaponeering Components project, now referred to as the Weaponeering and Stores Planning (WASP) components, are integrated software products that allow aircrew to determine the best combinations of weapons and delivery conditions to achieve the desired level of target damage, eliminate weapon delivery solutions that violate aircraft Type/Model/Series (T/M/S) specific safety-of-flight envelopes, and perform detailed weapons employment planning. WASP is approved by Air Warfare Division (N98) as a flight clearance implementation system for the F/A-18 A, A+, B, C, D, D (RC), E, F, EA-18G; potential support for other platforms, to include F-35. WASP components will alert pilots if their planned weapon release conditions meet flight clearance limits, will result in bomb-to-bomb collisions, bomb-to-aircraft collisions, aircraft overstress, or excessive risk of aircraft loss/damage in the event of fuze early bursts. Weapon employment planning is fundamental to the Joint Capability Area of Force Application and joint mission areas of Strike and Amphibious Warfare. WASP provides the Navy and Marine Corp with weaponeering capabilities that are critical requirements for Interdiction, Armed Reconnaissance and Close Air Support mission planning. Therefore, WASP product availability is critical to successful employment of the Joint Mission Planning System (JMPS) for the F/A-18 A-F and EA-18G. The WASP product encompasses a multitude of Government Furnished Information software components and tools (aircraft target maneuver simulations, weapon flyout models, target probability of damage calculators). WASP products will require updates as emergent requirements for new aircraft T/M/S, stores and weapons are approved, and new flight clearances and flight restrictions are issued by Naval Air Systems Command Headquarters (NAVAIRSYSCOM).

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Title: Product Development	6.173	3.905	4.325	-	4.325
Articles:	-	-	-	-	-
Description: Includes associated system engineering design, development, installation, integration and software development for WASP components V3.0A, V3.1, V3.1A, V3.1B, V3.1C, V3.1D, V3.2, V3.2A, V3.2B, V3.3 to support F/A-18 A-F; and V3.1 and later to support EA-18G. Naval Air Warfare Center Weapons Division (NAWCWD), Joint Software Support Activity (JSSA) will develop and maintain the AV-8B Weapons and Release Planning (WARP) tool. Define requirements to integrate WASP components into the JMPS. Provide domain engineering support for weapons separation, aircraft loads, flutter, fuzing and safe escape for application to WASP. Provide analysis of new requirements, allocation of requirements, design oversight, and life cycle management of the WASP program. Develop new aircraft configuration, aircraft loading, weapon optimization, store release and delivery planning components for F/A-18 A-F and EA-18G new flight clearances and flight restrictions issued by NAVAIRSYSCOM. Provide configuration management, system administration, quality					

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604215N / *Standards Development*	**Project (Number/Name)** 2311 / *Stores Planning and Weaponeering Module*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
assurance, documentation, metrics and software risk management for WASP. Acquire, integrate and modify numerous Government Furnished Information (GFI) software components and tools (aircraft target maneuver simulations, weapon flyout models, target probability of damage calculators, etc.) that are used for the WASP software development. Integrate WASP with Joint Standoff Weapon/Joint Direct Attack Munitions/Standoff Land-Attack Missile - Expanded Response and other weapons mission planning systems as required. ***FY 2014 Accomplishments:*** Released V3.0 to the Fleet. Continued development and release of V3.1. Developed and released multiple database updates. Began development of V3.2. ***FY 2015 Plans:*** Continue V3.2 development, begin development of V3.3, and release multiple database updates. ***FY 2016 Base Plans:*** Complete development of V3.3, and release multiple database updates. Begin V4.0 development which incorporates planned architectural and usability improvements. ***FY 2016 OCO Plans:*** N/A					
Title: Test and Evaluation (T&E) ***Articles:*** ***Description:*** Provide test and evaluation for unit and system level testing; functional qualification testing; safety of flight certification testing; integration and standards compliance testing for WASP versions V3.0A, V3.1, V3.1A, V3.1B, V3.1C, V3.1D V3.2, V3.2A, V3.2B. Provide Joint Mission Planning System Mission Planning Environment Integration test support. Provide testing and test support to ensure all (to include internally developed software, externally developed GFI) components comply with Department of Navy (DoN) and Department of Defense (DoD) software mandates and directives. These include Integrated Shipboard Network System IT-21, DoD Information Assurance Certification and Accreditation Process, Navy Marine Corps Intranet (NMCI) and DoD Information Technology Portfolio Repository. All Fleet released software must comply with DoN and DoD software directives or will not be allowed to run on ship Local Area Networks or NMCI. ***FY 2014 Accomplishments:***	2.552 -	2.109 -	3.286 -	- -	3.286 -

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604215N / *Standards Development*	**Project (Number/Name)** 2311 / *Stores Planning and Weaponeering Module*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Completed test and evaluation of WASP V3.1 and multiple database updates. Analyzed test requirements for V3.2. ***FY 2015 Plans:*** Complete test and evaluation of WASP V3.2 in order to release to fleet in FY16. Complete test and evaluation of multiple database updates. Analyze test requirements for V3.3. ***FY 2016 Base Plans:*** Complete test and evaluation of WASP major V3.3 in order to release to fleet in FY17. Complete test and evaluation of multiple database updates. Analyze test requirements. ***FY 2016 OCO Plans:*** N/A					
Title: Program Management/Systems Engineering	3.231	3.291	3.330	-	3.330
Articles:	-	-	-	-	-
Description: Provide program management and systems engineering support, which includes requirements definition and analysis, compliance with Naval Air Systems Command systems engineering technical review processes, Weaponeering and Stores Planning (WASP) acquisition documentation development and support, cost, schedule and performance management, contracting support (providing contract administration, preparing contract packages for award), compliance with external directives and providing financial support (accept, obligate, commit, and track funding). Provide travel for WASP Government personnel. Continue performing project management support for this program throughout the Future Years Defense Program/Plan. ***FY 2014 Accomplishments:*** Continued project management and systems engineering support to the WASP for future releases of WASP to the fleet. Additional support required for multiple database releases. ***FY 2015 Plans:*** Continue project management and systems engineering support to the WASP for future releases of WASP to the fleet. Additional support will be required for multiple database releases. ***FY 2016 Base Plans:*** Continue project management and systems engineering support to the WASP for future releases of WASP to the fleet. Additional support will be required for multiple database releases. ***FY 2016 OCO Plans:***					

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604215N / *Standards Development*	**Project (Number/Name)** 2311 / *Stores Planning and Weaponeering Module*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
N/A					
Accomplishments/Planned Programs Subtotals	11.956	9.305	10.941	-	10.941

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• RDTE/3858,5302,5380: *Air Force Mission Planning Systems*	62.432	60.679	65.701	-	65.701	83.246	82.894	84.798	-	Continuing	Continuing

Remarks

D. Acquisition Strategy

Weaponeering and Stores Planning (WASP) products, delivered annually, were developed in-house by NAVAIR consisting of Naval Air Warfare Center Aircraft Division and Naval Air Warfare Center Weapons Division engineers and support contractors. The team has now migrated to a smaller government team that provides functional expertise in aircraft safety-of-flight (air-vehicle stores compatibility, weapons separation, aircraft aerodynamic flutter, ground/flight loads, authorized fuze arm times, aircraft safe escape), guided weapons employment and weapons effects against targets, with the majority of the software development conducted by various contractors. The Government, engineering, test, and support teams (test facilities, functional qualification testing and certification/accreditation test) are supplemented with contractor labor.

E. Performance Metrics

Average time to plan a flight: Threshold value is < 1 hour average time to plan a flight that includes full aircraft loadout and weapons delivery safe escape planning. Objective value is < 15 minutes average time to plan a flight that includes full aircraft loadout and weapons delivery safe escape planning. End product is a pilot's z-diagram knee board card.

Interoperability: Threshold value is 100% stand alone value.
Objective value is 100% stand alone value.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604215N / *Standards Development*	**Project (Number/Name)** 2311 / *Stores Planning and Weaponeering Module*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Product Development (Government Furnished Information, Occupancy (OCC))	WR	Naval Air Warfare Center Aircraft Division NAWCAD : Patuxent River, MD	17.016	0.030	Nov 2013	-		-		-		-	-	17.046	-
Product Development	WR	Air Force Seek Eagle : Eglin Air Force Base, FL	0.229	0.081	Nov 2013	0.082	Jan 2015	0.081	Jan 2016	-		0.081	Continuing	Continuing	Continuing
Primary Software Development	C/CPFF	DCS Corp : Alexandria, VA	6.936	4.553	Apr 2014	3.161	Jan 2015	3.765	Jan 2016	-		3.765	-	18.415	18.415
Product Development - Weapons and Release Planning (WARP)	WR	Naval Air Warfare Center Weapons Division NAWCWD : China Lake, CA	1.937	-		-		-		-		-	-	1.937	-
SEAL Software Development	C/CPFF	ManTech : Various	1.022	0.517	Nov 2013	0.662	Jan 2015	0.479	Jan 2016	-		0.479	Continuing	Continuing	Continuing
Prior year Prod Dev cost no longer funded in Future Years Defense Program/ Plan	Various	Various : Various	64.207	-		-		-		-		-	-	64.207	-
		Subtotal	91.347	5.181		3.905		4.325		-		4.325	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Test & Evaluation Civilian & OCC	WR	NAWCAD : Patuxent River, MD	20.262	1.350	Nov 2013	1.077	Nov 2014	2.254	Nov 2015	-		2.254	Continuing	Continuing	Continuing
Test & Evaluation MANTECH & WYLE	C/CPFF	Various : Various	10.867	1.006	Nov 2013	1.032	Jan 2015	1.032	Jan 2016	-		1.032	-	13.937	13.937
Prior Year T&E costs no longer funded in Future Years Defense Program/ Plan (FYDP)	Various	Various : Various	0.377	-		-		-		-		-	-	0.377	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604215N / *Standards Development*	**Project (Number/Name)** 2311 / *Stores Planning and Weaponeering Module*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	31.506	2.356		2.109		3.286		-		3.286	-	-	-

Management Services ($ in Millions)

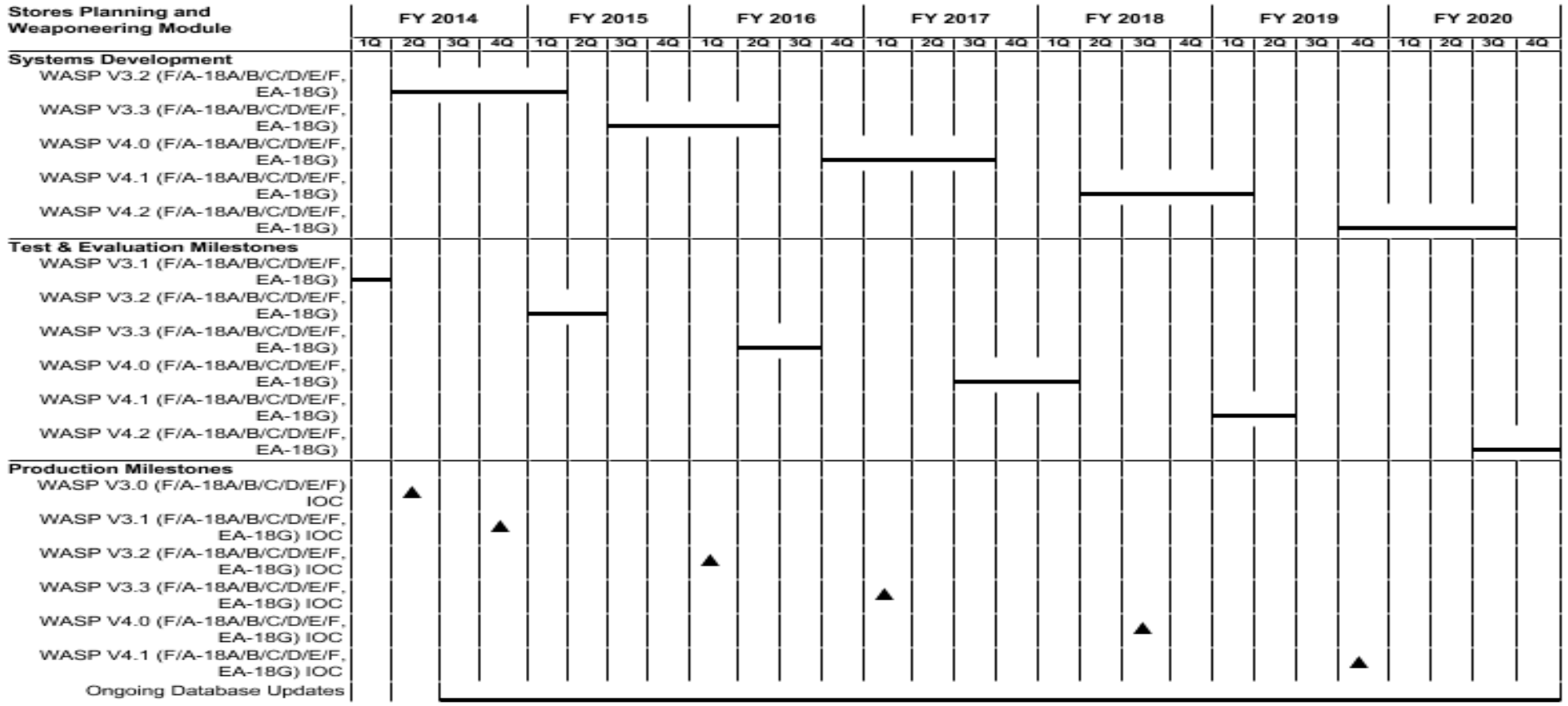
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support Tecelote, shared costs, Materials	WR	Naval Air Warfare Center Aircraft Division NAWCAD : Patuxent River, MD	9.592	0.440	Nov 2013	0.584	Nov 2014	0.578	Feb 2016	-		0.578	Continuing	Continuing	Continuing
Government Engineering Support Civilian Sys Eng	WR	NAWCAD : Patuxent River, MD	6.751	1.900	Nov 2013	0.821	Nov 2014	0.875	Nov 2015	-		0.875	Continuing	Continuing	Continuing
Program Management Support Brandes & MANTECH	Various	Various : Various	1.874	0.284	Feb 2014	0.289	Feb 2015	0.289	Feb 2016	-		0.289	-	2.736	2.736
Government Engineering Support: Guided Weapons	WR	Naval Air Warfare Center Weapons Division NAWCWD : China Lake, CA	1.133	0.019	Nov 2013	0.020	Nov 2014	0.023	Nov 2015	-		0.023	Continuing	Continuing	Continuing
Travel	WR	NAWCAD : Patuxent River, MD	1.294	0.030	Nov 2013	0.015	Nov 2014	0.015	Nov 2015	-		0.015	Continuing	Continuing	Continuing
Systems Engineering Support	Various	Wyle : Huntsville, AL	2.841	1.541	Nov 2013	1.350	Dec 2014	1.550	Dec 2015	-		1.550	-	7.282	7.282
Govt Engineering Support: Mission Planning Environment Integration	WR	NAWCWD : Point Mugu, CA	0.197	0.205	Jan 2014	0.212	Jan 2015	-		-		-	-	0.614	-
Prior year Mgmt costs no longer funded in FYDP	Various	Various : Various	0.663	-		-		-		-		-	-	0.663	-
		Subtotal	24.345	4.419		3.291		3.330		-		3.330	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Navy			Date: February 2015
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604215N / *Standards Development*	Project (Number/Name) 2311 / *Stores Planning and Weaponeering Module*	

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	147.198	11.956		9.305		10.941		-		10.941	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604215N / *Standards Development*	**Project (Number/Name)** 2311 / *Stores Planning and Weaponeering Module*



2016OSD - 0604215N - 2311

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604215N / *Standards Development*	**Project (Number/Name)** 2311 / *Stores Planning and Weaponeering Module*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Stores Planning and Weaponeering Module				
Systems Development: WASP V3.2 (F/A-18A/B/C/D/E/F, EA-18G):	2	2014	1	2015
Systems Development: WASP V3.3 (F/A-18A/B/C/D/E/F, EA-18G):	3	2015	2	2016
Systems Development: WASP V4.0 (F/A-18A/B/C/D/E/F, EA-18G):	4	2016	3	2017
Systems Development: WASP V4.1 (F/A-18A/B/C/D/E/F, EA-18G):	2	2018	1	2019
Systems Development: WASP V4.2 (F/A-18A/B/C/D/E/F, EA-18G):	4	2019	3	2020
Test & Evaluation Milestones: WASP V3.1 (F/A-18A/B/C/D/E/F, EA-18G): Test and Evaluation	1	2014	1	2014
Test & Evaluation Milestones: WASP V3.2 (F/A-18A/B/C/D/E/F, EA-18G): Test and Evaluation	1	2015	2	2015
Test & Evaluation Milestones: WASP V3.3 (F/A-18A/B/C/D/E/F, EA-18G): Test and Evaluation	2	2016	3	2016
Test & Evaluation Milestones: WASP V4.0 (F/A-18A/B/C/D/E/F, EA-18G): Test and Evaluation	3	2017	1	2018
Test & Evaluation Milestones: WASP V4.1 (F/A-18A/B/C/D/E/F, EA-18G): Test and Evaluation	1	2019	2	2019
Test & Evaluation Milestones: WASP V4.2 (F/A-18A/B/C/D/E/F, EA-18G): Test and Evaluation	3	2020	4	2020
Production Milestones: WASP V3.0 (F/A-18A/B/C/D/E/F) IOC:	2	2014	2	2014
Production Milestones: WASP V3.1 (F/A-18A/B/C/D/E/F, EA-18G) IOC:	4	2014	4	2014
Production Milestones: WASP V3.2 (F/A-18A/B/C/D/E/F, EA-18G) IOC:	1	2016	1	2016
Production Milestones: WASP V3.3 (F/A-18A/B/C/D/E/F, EA-18G) IOC:	1	2017	1	2017
Production Milestones: WASP V4.0 (F/A-18A/B/C/D/E/F, EA-18G) IOC:	3	2018	3	2018
Production Milestones: WASP V4.1 (F/A-18A/B/C/D/E/F, EA-18G) IOC:	4	2019	4	2019

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604215N / *Standards Development*	**Project (Number/Name)** 2311 / *Stores Planning and Weaponeering Module*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Production Milestones: Ongoing Database Updates:	3	2014	4	2020

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy										Date: February 2015		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604215N / *Standards Development*				Project (Number/Name) 2312 / *Common Helicopters*			
COST ($ in Millions)	**Prior Years**	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**	**Cost To Complete**	**Total Cost**
2312: *Common Helicopters*	15.408	0.524	0.559	0.575	-	0.575	0.667	0.679	0.693	0.707	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Automated mission planning systems to date have focused on developing planning capabilities for fixed-wing aircraft, while the unique planning requirements for helicopters have not been fully addressed. The unique and enhanced automated mission planning requirements that must be developed and implemented for helicopters include: data loading, an enhanced route editor (serpentine routing, hover), manipulation of higher fidelity (smaller scale) maps and imagery, enhanced performance tools (performance in and out of ground effect, performance degradation due to atmospheric conditions & elevation), and enhanced fidelity of landing zone, target zone, and threat analyses. The following type/model/series aircraft are supported by this PE: AH-1W/Z, UH-1N/Y, H-46/E, H-53D/E, H-60B/F/H/R/S and V-22. Common helicopter functionality will be developed for implementation in Joint Mission Planning System (JMPS).

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Title: Common Helicopters	0.524	0.559	0.575	-	0.575
Articles:	-	-	-	-	-
Description: Development of Common Helicopter functionality and integration with JMPS Framework Versions 1.2.4, 1.3.5 and 64 bit Operating System. Common Components include Common Mission Data Loader (CMDL), Weapon Employment Zone Overlays Tool (WEZOT) and Point Selection Tool (PST). ***FY 2014 Accomplishments:*** Developed a Search Pattern Tool and WEZOT functionality to display weapon employment zone overlays for the Advanced Precision Kill Weapons System and Joint Air-to-Ground Missile for JMPS. Developed CMDL and WEZOT to operate with next JMPS FW and 64 bit Operating System. ***FY 2015 Plans:*** Continue the development of the CMDL, WEZOT and PST to operate with next JMPS FW and 64 bit Operating System. ***FY 2016 Base Plans:*** Continue the development of the CMDL, WEZOT and PST to operate with next JMPS FW and 64 bit Operating System. ***FY 2016 OCO Plans:*** N/A					
Accomplishments/Planned Programs Subtotals	0.524	0.559	0.575	-	0.575

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604215N / *Standards Development*	**Project (Number/Name)** 2312 / *Common Helicopters*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• RDTE/3858,5302,5380: *Air Force Mission Planning Systems*	62.432	60.679	65.701	-	65.701	83.246	82.894	84.798	-	Continuing	Continuing
• 0604231N/2213: *Mission Planning*	19.883	26.097	47.733	-	47.733	24.338	22.071	22.282	22.759	Continuing	Continuing

Remarks

D. Acquisition Strategy

Not Applicable.

E. Performance Metrics

Export Mission Data to Data Transfer Device: Threshold value is < 12 minutes to transfer navigation, communication, weapon system initialization settings and intelligence data.

Interoperability: Threshold value is 100% of top level Information Exchange Requirements (IERs)designated critical will be satisfied. Objective value is 100% of top level IERs will be satisfied.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Navy			Date: February 2015
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604215N / *Standards Development*	Project (Number/Name) 2312 / *Common Helicopters*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary Software Development	C/CPFF	Joint Technology Engineering Inc. : Valparaiso, FL	3.381	0.524	Jan 2014	0.559	Jan 2015	0.575	Jan 2016	-		0.575	2.091	7.130	7.130
Prior year Prod Dev costs no longer funded in FYDP	Various	Various : Various	11.040	-		-		-		-		-	-	11.040	-
		Subtotal	14.421	0.524		0.559		0.575		-		0.575	2.091	18.170	-

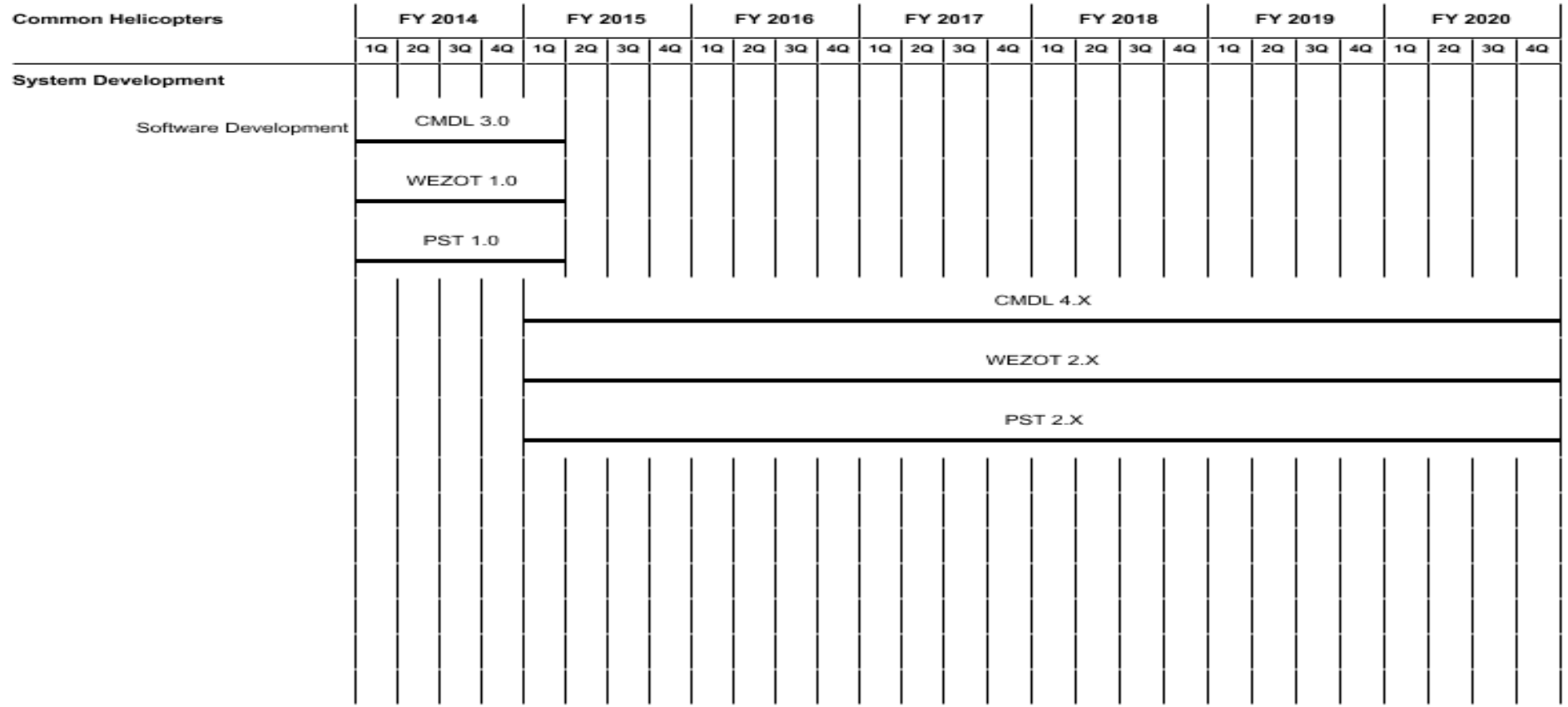
Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Prior year T&E costs no longer funded in FYDP	Various	Various : Various	0.987	-		-		-		-		-	Continuing	Continuing	Continuing
		Subtotal	0.987	-		-		-		-		-	-	-	-

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	15.408	0.524		0.559		0.575		-		0.575	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604215N / *Standards Development*	**Project (Number/Name)** 2312 / *Common Helicopters*



2016OSD - 0604215N - 2312

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604215N / *Standards Development*	**Project (Number/Name)** 2312 / *Common Helicopters*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Common Helicopters				
System Development: Software Development: Common Mission Data Loader (CMDL) 3.0	1	2014	1	2015
System Development: Software Development: Weapons Employment Zone Overlay Tool (WEZOT) 1.0	1	2014	1	2015
System Development: Software Development: Point Selection Tool (PST)	1	2014	1	2015
System Development: Software Development: CMDL 4.X	1	2015	4	2020
System Development: Software Development: WEZOT 2.X	1	2015	4	2020
System Development: Software Development: PST 2.X	1	2015	4	2020