Exhibit R-2, RDT&E Budget Item Justification: FY 2018 Navy											Date: May 2017	
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 5: *System Development & Demonstration (SDD)*					R-1 Program Element (Number/Name) PE 0605217N *I (U)Common Avionics*							
COST ($ in Millions)	**Prior Years**	**FY 2016**	**FY 2017**	**FY 2018 Base**	**FY 2018 OCO**	**FY 2018 Total**	**FY 2019**	**FY 2020**	**FY 2021**	**FY 2022**	**Cost To Complete**	**Total Cost**
Total Program Element	0.000	0.000	54.599	58.163	-	58.163	62.003	65.269	64.810	65.918	Continuing	Continuing
0572: *JT Service/NV Std Avionics CP/SB*	0.000	0.000	54.599	53.512	-	53.512	55.653	56.769	56.510	57.618	Continuing	Continuing
3425: *Digital Warfare Office (DWO) MBE&DT Development*	0.000	0.000	0.000	4.651	-	4.651	6.350	8.500	8.300	8.300	Continuing	Continuing

Note

(U) Common Avionics schedule FY16 and prior is reflected in PE 0604215N, Project Unit 0572.

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.

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.

B. Program Change Summary ($ in Millions)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Previous President's Budget	0.000	51.599	63.898	-	63.898
Current President's Budget	0.000	54.599	58.163	-	58.163
Total Adjustments	0.000	3.000	-5.735	-	-5.735
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Program Adjustments	0.000	3.000	-5.350	-	-5.350

Exhibit R-2, RDT&E Budget Item Justification: FY 2018 Navy				Date: May 2017	
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 5: *System Development & Demonstration (SDD)*		R-1 Program Element (Number/Name) PE 0605217N *I (U)Common Avionics*			
• Rate/Misc Adjustments	0.000	0.000	-0.385	-	-0.385

Change Summary Explanation

Technical: Not applicable.

Schedule:

Communication, Navigation, Surveillance/Air Traffic Management (CNS/ATM): CH-53K Integration and Certification efforts extended until 4Q/19 to align with platform schedule.

Tactical Communications: Change in Joint Interoperability Test Command/National Security Agency Certification processes caused adjustments to schedule. Shifted Crypto Modernization (Suite B) from 1Q/19 to 1Q/18 and added Transmission Security (TRANSEC) due to mandated NSA Crypto Modernization initiatives.

Ground Proximity Warning System/Terrain Awareness System (GPWS/TAWS II): Renamed V-22 CFIT Study CA to V-22 Integration Study (Contract Award). Continued V-22 TAWS II S/W Dev into 2Q/22.

Collaborative Warfare (CW): Name change from JCIDS Strategy to Naval Aviation Netted Sensors and Maritime Targeting Experimentation. Name change from Naval Aviation Tactical Networking Requirements to Naval Aviation and Maritime Targeting Requirements. Added Capability for Common Radio Enhancement (CoRE) to better align with N2/N6 and ONR.

Mid Air Collision Avoidance Capability: Replan FY17-FY22 due to FY18 reduction. Shifted MDD/ASR from 1Q/17 to 2Q/18; Added RFP Release Decision per DOD 5000.02 requirements; Shifted ILA from 1Q/18 to 3Q/19; Shifted Milestone B from 2Q/18 to 4Q/19; Added Specification Development and Risk Reduction for Prototyping of Algorithms and SW (1Q/17-3Q/17) to clarify support of CDD approval efforts; Added Phase 2 Spec Development (1Q/18-1Q/19); Added Phase 2 Risk Reduction for Prototyping of Algorithms and SW (1Q/18-3Q/19); Shifted SRB/SRR from 2Q/17 to 1Q/19; Shifted SFR from 3Q/17 to 2Q/19; Shifted PDR from 1Q/18 to 3Q/19; Shifted Software Design and Development from 2Q/18-1Q/21 to 1Q/20-4Q/22; Shifted CDR from 3Q/19 to 3Q/20; Shifted Platform Integration from 3Q/19-4Q/21 to 3Q/21-4Q/22; Shifted Test and Evaluation MH-60 R/S from 3Q/21-4Q/21 to 3Q/22-4Q/22; Added TRR 3Q/22.

(U) Common Avionics schedule FY16 and prior is reflected in PE 0604215N, Project Unit 0572.

3425: The Digital Warfare Office stood up separately within Program Element to set requirements, prioritize resources, and lead efforts on information interoperability and human/machine teaming starting 1QTR FY18 through the FYDP.

Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy			Date: May 2017
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605217N / *(U)Common Avionics*	Project (Number/Name) 0572 / *JT Service/NV Std Avionics CP/SB*	

COST ($ in Millions)	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
0572: *JT Service/NV Std Avionics CP/SB*	0.000	0.000	54.599	53.512	-	53.512	55.653	56.769	56.510	57.618	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Note

(U) Common Avionics schedule FY16 and prior is reflected in PE 0604215N, Project Unit 0572.

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 II), Collaborative Warfare (CW), Avionics Component Improvement Program (AvCIP), Mid Air Collision Avoidance Capability (MCAC), and Avionics Architectures Team (AAT). 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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Title: Joint Service Review Committee for Avionics Standardization (JSRC-AS)	0.000	0.974	0.995	0.000	0.995
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 2016 Accomplishments: N/A					
FY 2017 Plans:					

Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy		Date: May 2017
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0605217N / *(U)Common Avionics*	**Project (Number/Name)** 0572 / *JT Service/NV Std Avionics CP/SB*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Provide leadership in support of the Navy's interest to the Joint Services Review Committee for Avionics Standardization (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 2018 Base Plans:*** Provide leadership in support of the Navy's interest to the Joint Services Review Committee for Avionics Standardization (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 2018 OCO Plans:*** N/A					
Title: Communication Navigation Surveillance/Air Traffic Management (CNS/ATM) ***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-BO) 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 F-35, CH-53K, and Unmanned Air Systems. Capabilities include Mode S, 8.33 kHz, RVSM, RNP/RNAV, ADS-BO, and other civil and military capabilities. ***FY 2016 Accomplishments:*** N/A ***FY 2017 Plans:*** Assist with insertion and integration of CNS/ATM technologies and certification of developmental platforms. Evaluate technologies and develop solutions to support platform integrations. Develop CNS/ATM Common Components to support RNP RNAV developmental platform requirements. Continue integration/certification of Mode Select, 8.33 kHz, RVSM, RNP/RNAV, and ADS-BO into CH-53K. Research and develop Global Positioning System (GPS) enhancements to support CNS/ATM RNP RNAV improvements. Research and	0.000 -	2.812 -	2.952 -	0.000 -	2.952 -

Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy		Date: May 2017
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
develop ADS-BO System Design Assurance requirements as well as compatibility with the emerging GPS M Code and its impact on RNP RNAV. ***FY 2018 Base Plans:*** Assist with insertion and integration of CNS/ATM technologies and certification of developmental platforms. Evaluate 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. Continue integration/certification of Mode Select, 8.33 kHz, Reduced Vertical Separation Minimum (RVSM), RNP/RNAV, and Automatic Dependent Surveillance-Broadcast Out (ADS-BO) into CH-53K. Research and develop Global Positioning System (GPS) enhancements to support Communication Navigation Surveillance/Air Traffic Management (CNS/ATM) RNP RNAV improvements. Research and develop (ADS-BO) System Design Assurance requirements as well as compatibility with the emerging Global Positioning System (GPS) M Code and its impact on RNP RNAV. ***FY 2018 OCO Plans:*** N/A					
Title: Tactical Communications (TACCOM) ***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, Transmission Security (TRANSEC) mandated National Security Agency (NSA) Crypto Modernization initiatives, Tactical Secure Voice (TSV) Suite B, Combat Net Radio (CNR) Variable Message Format (VMF), Beyond Line-of-Sight, Satellite Communication (SATCOM) Modernization including Mobile User Objective System (MUOS), High Frequency, Second Generation Anti-Jam Tactical UHF Radio for NATO (SATURN) civil interoperability, and data link into the ARC-210 system. Support for networking requirements development and prototyping, Integrated Waveform (IW), Intelligence Broadcast System over modern Code Division Multiple Access based satellite channels, Tactical Networks, Data Links, and Link 16. ***FY 2016 Accomplishments:***	0.000 -	20.311 -	19.777 -	0.000 -	19.777 -

Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy		Date: May 2017
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
N/A ***FY 2017 Plans:*** Continue development of SATCOM Software (S/W) Development with MUOS capabilities. Continue Operational Flight Plan (OFP) S/W integration. Submit Apollo crypto engine integration for Legacy NSA and Information Assurance (IA) certification. Develop Combat Net radio interoperability with Second-Generation Anti-Jam Tactical Ultra High Frequency (UHF) Radio for NATO (SATURN) waveform. ***FY 2018 Base Plans:*** Continue Satellite Communication (SATCOM) Software (S/W) development with Mobile User Objective System (MUOS) capabilities. Continue Operational Flight Plan (OFP) S/W integration. Submit Apollo crypto engine integration for Legacy NSA and Information Assurance (IA) certification. Develop Combat Net radio interoperability with Second-Generation Anti-Jam Tactical Ultra High Frequency (UHF) Radio for NATO (SATURN) waveform. Develop red-side provisioning options for the RT-2036. Develop Transmission Security (TRANSEC) SATCOM Crypto Modernization in accordance with NSA directives and Tactical Secure Voice(TSV)Suite B for interoperability. ***FY 2018 OCO Plans:*** N/A					
Title: Ground Proximity Warning System/Terrain Awareness Warning System (GPWS/TAWS II) ***Articles:***	0.000 -	7.834 -	8.668 -	0.000 -	8.668 -
Description: This program will conduct research, studies, development, integration, demonstration, test and evaluation efforts to meet naval aviation GPWS/TAWS II requirements. These requirements span all operational modes and operational environments, to include Degraded Visual Environment. Perform GPWS/TAWS II platform integration studies and activities to determine technical and cost effective solutions across naval aviation. Develop GPWS/TAWS II 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 II development effort. Develop GPWS/TAWS II 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 II algorithm in host platforms. ***FY 2016 Accomplishments:***					

Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy		Date: May 2017
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
N/A ***FY 2017 Plans:*** Develop and deliver the second formal software build of TAWS II system to H-60. Continue Phase I & II Developmental Testing (DT) in MH-60R/S. ***FY 2018 Base Plans:*** Complete Phase II DT on MH-60R/S. Conduct Milestone C and Fleet Release of TAWS II on MH-60R/S. Conduct V-22 TAWS II requirements development efforts. ***FY 2018 OCO Plans:*** N/A					
Title: Collaborative Warfare (CW) ***Articles:***	0.000 -	0.219 -	0.240 -	0.000 -	0.240 -
Description: The Collaborative Warfare (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 maritime targeting gaps for naval aircraft to operate more effectively with other military services. The following efforts are included: 1) Comprehensive naval aviation and maritime targeting requirements that map fleet gaps and requirements to cross-platform naval aviation solutions. 2) Netted sensors and maritime targeting capability proof of concept prototype demonstrations leveraging the Navy's Fleet Experimentation campaign. 3) Coordinating Naval Aviation requirements with the Office of Naval Research Future Naval Capability Enabling Capability for the Common Radio Enhancement (CoRE). 4) Coordination of Naval Aviation strategy with Intelligence Community (IC) efforts in the areas of High Side Data Fusion, Combat Systems Integration, and National to Tactical Integration. ***FY 2016 Accomplishments:*** N/A ***FY 2017 Plans:*** 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 2018 Base Plans:***					

Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy		Date: May 2017
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Continue executing to Naval Aviation and Maritime Targeting Experimentation and Requirements. Develop requirements, standards, and architectures in support of new and updated netted-sensors' Concept of Operations and capabilities. ***FY 2018 OCO Plans:*** N/A					
Title: Avionics Component Improvement Program (AvCIP)	0.000	4.692	4.572	0.000	4.572
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 2016 will enable sustainment and procurement cost avoidances exceeding a five to one margin by 2025.					
FY 2016 Accomplishments:					

Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy		Date: May 2017
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
N/A ***FY 2017 Plans:*** Address current fleet problem avionics systems (top readiness degraders, cost drivers, obsolescence-driven sustainability, capability loss, fleet head-hurters). ***FY 2018 Base Plans:*** Address current fleet problem avionics systems (top readiness degraders, cost drivers, obsolescence-driven sustainability, capability loss, fleet head-hurters). ***FY 2018 OCO Plans:*** N/A					
Title: Mid Air Collision Avoidance Capability (MCAC) ***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 2016 Accomplishments:*** N/A ***FY 2017 Plans:***	0.000 -	3.550 -	2.108 -	0.000 -	2.108 -

Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy		Date: May 2017
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Finalize and approve Capability Development Document (CDD). Specification development and Risk Reduction for Prototyping of Algorithms & Software (phase 1) supports and clarifies the existing requirement of CDD approval efforts. ***FY 2018 Base Plans:*** Continue Specification Development and Risk Reduction Prototyping to evaluate Mid Air Collision Avoidance Capability (MCAC) algorithms and software. Conduct Material Development Decision/Acquisition Strategy Review (MDD/ASR). Prepare for Specification Review Boards (SRB) /System Readiness Review (SRR) and System Functional Review (SFR). ***FY 2018 OCO Plans:*** N/A					
Title: Avionics Architectures Team (AAT) ***Articles:*** ***Description:*** The Avionics Architecture Team (AAT) provides hardware and software (HW/SW) standards and product line development and management for common HW/SW operating environments to establish testable open architecture requirements in accordance with National Defense Authorization Act (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 Functional Architecture for Strategic Reuse (FASTR) initiative will define a standard process for mission level capability decomposition to support product line development and management. The AAT provides Subject Matter Experts to define and architect a set of Open Architecture Standards and product lines, design principles and guidance, development and integration tools, acquisition strategy, contracting guidance and cost estimates. The results will enable Department of Defense (DoD) weapons systems to systematically procure open, modular and reconfigurable software architectures, reuse HW/SW and deliver scalable, portable and interoperable war fighting capabilities at a faster rate, reducing redundant development costs and increasing competition. Infrastructure components and frameworks built to these standards will support Communication Navigation Surveillance/Air Traffic Management (CNS/ATM) capability upgrades on various platforms by enabling integration of common, non-proprietary applications. 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.	0.000 -	14.207 -	14.200 -	0.000 -	14.200 -

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
FY 2016 Accomplishments: N/A ***FY 2017 Plans:*** Provide development support, mission based engineering, systems engineering and program management for design and acquisition strategy implementation guidance. Develop conformance tools for Edition 3.0 of the Future Airborne Capability Environment (FACE) Technical Standard and incorporate revisions to the standard based on issues identified by government and industry consortium. Research new hardware technologies and develop Tier 2 Hardware Open Systems Technologies (HOST) specifications to support widely adopted commercial technologies and platform requirements. Assist platforms with strategies for modular functional architectures and implementation of FACE and HOST standards. Subject Matter Expert support for platform integration and competitive source selection. Academia prototyping and demonstration efforts for FACE, Functional Architecture for Strategic Reuse (FASTR) and HOST initiatives. ***FY 2018 Base Plans:*** Provide development support, mission based engineering, systems engineering and program management for design and acquisition strategy implementation guidance. Generate revisions for future editions of the FACE Technical Standard based on issues identified by government and industry consortium and develop corresponding conformance tools. Research new hardware technologies and develop Tier 2 HOST specifications to support widely adopted commercial technologies and platform requirements. Provide input to platforms developing Tier 3 HOST specifications. Assist platforms with strategies for modular functional architectures and implementation of FACE and HOST standards. Participate in international collaboration efforts to define comprehensive open architecture strategy. Generate alignment strategies for a comprehensive open architecture approach between Navy, Army and Air Force. Support the implementation of Naval Aviation's data model strategy. Provide subject Matter Expert support for platform integration and competitive source selection. Academia prototyping and demonstration efforts for FACE, FASTR and HOST initiatives. ***FY 2018 OCO Plans:*** N/A					
Accomplishments/Planned Programs Subtotals	0.000	54.599	53.512	0.000	53.512

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C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
• APN/0577: *Common Avionics Changes*	154.588	164.839	123.507	-	123.507	150.881	109.444	132.203	114.976	353.447	3,611.398

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 (TACCOM) is utilizing a firm fixed price contract to Rockwell Collins for research and development of the ARC-210 Gen 5/6 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 (GPWS/TAWS II) Software Modules will be developed by a Government Software Product Team in collaboration with Industry where 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). 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 include but are not limited to Traffic Collision Avoidance Systems and Mid Air Collision Avoidance Systems. MCAC Software Modules will be developed by a Government Software Product Team in collaboration with Industry where required. Avionics Architectures Team (AAT) 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.
Communication, Navigation, Surveillance/Air Traffic Management (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.

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Ground Proximity Warning System/Terrain Awareness Warning System (GPWS/TAWS II) - Develop algorithm and software to meet platform specific requirements, successfully complete flight test, and deliver product on schedule. Successfully complete Milestone B, Milestone C, and Fleet Release.
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.
Mid Air Collision Avoidance Capability (MCAC) - Achieve program acquisition milestones on cost and schedule meeting platform requirements.
Avionics Architectures Team (AAT) - 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: FY 2018 Navy		Date: May 2017
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0605217N / *(U)Common Avionics*	**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 2016 Cost	FY 2016 Award Date	FY 2017 Cost	FY 2017 Award Date	FY 2018 Base Cost	FY 2018 Base Award Date	FY 2018 OCO Cost	FY 2018 OCO Award Date	FY 2018 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary Hardware Dev CNS/ATM	SS/CPFF	Sikorsky : Stratford, CT	0.000	0.000		1.792	May 2017	1.750	Mar 2018	-		1.750	0.000	3.542	3.542
Primary Hardware Dev	Various	NAWCAD : Patuxent River, MD	0.000	0.000		1.421	Mar 2017	1.375	Nov 2017	-		1.375	Continuing	Continuing	Continuing
Primary Hardware Dev	Various	Various : Various	0.000	0.000		4.907	Mar 2017	4.031	Jan 2018	-		4.031	Continuing	Continuing	Continuing
Aircraft Integration TACCOM	SS/FFP	Rockwell Collins : Cedar Rapids, IA	0.000	0.000		4.875	Nov 2016	8.453	Mar 2018	-		8.453	0.000	13.328	13.134
Aircraft Integration GPWS/ TAWS II	SS/CPIF	Lockheed Martin : Owego, NY	0.000	0.000		4.937	May 2017	4.087	Feb 2018	-		4.087	0.000	9.024	9.024
Systems Engineering AAT	MIPR	DTIC : Fort Belvior, VA	0.000	0.000		8.811	Jan 2017	9.130	Jan 2018	-		9.130	Continuing	Continuing	Continuing
Systems Engineering	WR	NAWCAD : Patuxent River, MD	0.000	0.000		1.530	Mar 2017	1.934	Nov 2017	-		1.934	Continuing	Continuing	Continuing
Systems Engineering	Various	Various : Various	0.000	0.000		1.197	Mar 2017	0.970	Jan 2018	-		0.970	Continuing	Continuing	Continuing
		Subtotal	0.000	0.000		29.470		31.730		-		31.730	-	-	-

Remarks

TACCOM aircraft integration increase from FY17-FY18 is due to extensive aircraft integration work related with the Crypto Engine Integration efforts.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2016 Cost	FY 2016 Award Date	FY 2017 Cost	FY 2017 Award Date	FY 2018 Base Cost	FY 2018 Base Award Date	FY 2018 OCO Cost	FY 2018 OCO Award Date	FY 2018 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Software Development TACCOM	SS/FFP	Rockwell : Cedar Rapids, IA	0.000	0.000		6.742	Apr 2017	6.009	Mar 2018	-		6.009	0.000	12.751	12.751
Integrated Logistics Support	WR	NAWCAD : Patuxent River, MD	0.000	0.000		1.094	Mar 2017	1.060	Nov 2017	-		1.060	Continuing	Continuing	Continuing
		Subtotal	0.000	0.000		7.836		7.069		-		7.069	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Navy			Date: May 2017
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605217N / *(U)Common Avionics*	Project (Number/Name) 0572 / *JT Service/NV Std Avionics CP/SB*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2016 Cost	FY 2016 Award Date	FY 2017 Cost	FY 2017 Award Date	FY 2018 Base Cost	FY 2018 Base Award Date	FY 2018 OCO Cost	FY 2018 OCO Award Date	FY 2018 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test and Evaluation	Various	Various : Various	0.000	0.000		2.176	Mar 2017	0.000		-		0.000	0.000	2.176	-
Developmental Test and Evaluation	WR	NAWCAD : Patuxent River, MD	0.000	0.000		0.000		2.033	Nov 2017	-		2.033	Continuing	Continuing	Continuing
		Subtotal	0.000	0.000		2.176		2.033		-		2.033	-	-	-

Management Services ($ in Millions)

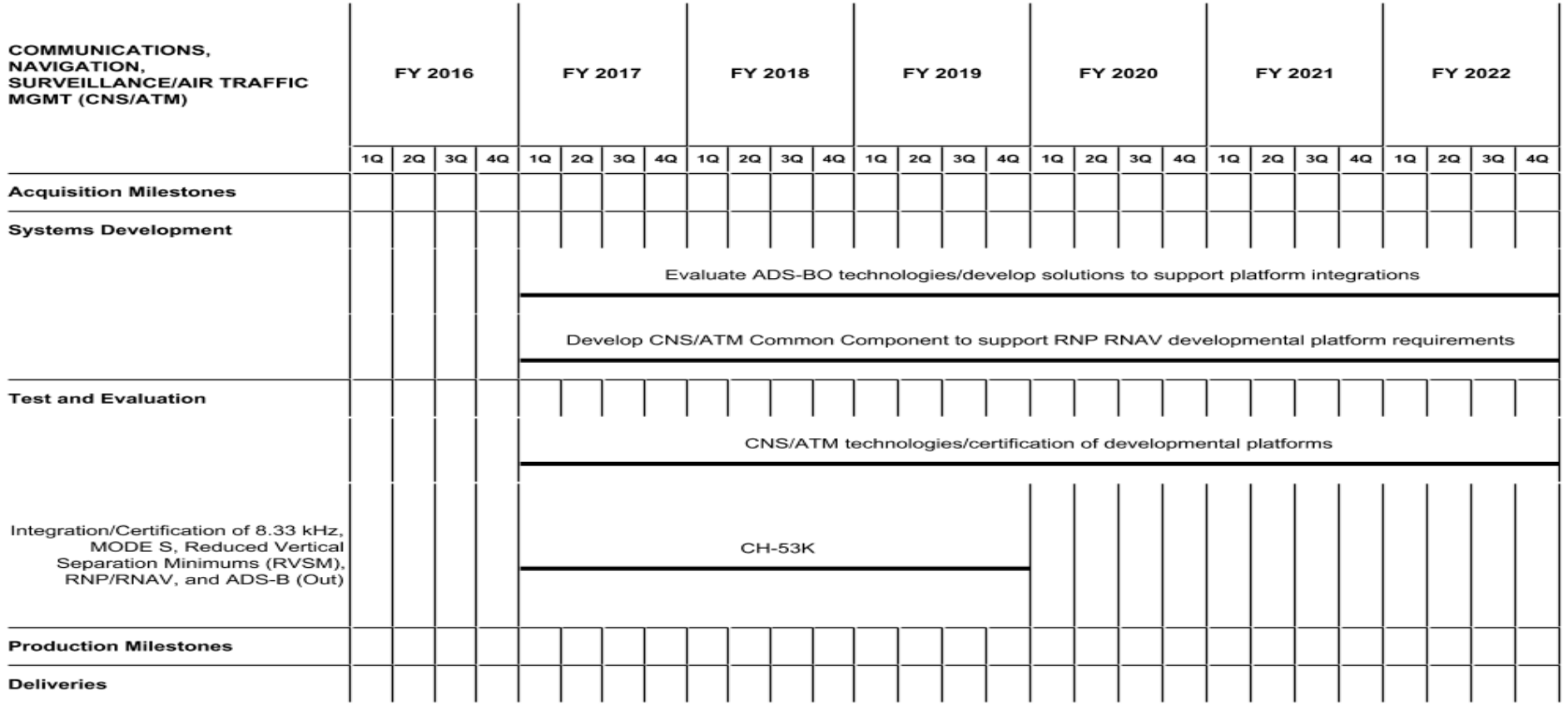
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2016 Cost	FY 2016 Award Date	FY 2017 Cost	FY 2017 Award Date	FY 2018 Base Cost	FY 2018 Base Award Date	FY 2018 OCO Cost	FY 2018 OCO Award Date	FY 2018 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Contractor Engineering Support	Various	Various : Various	0.000	0.000		8.669	Apr 2017	6.255	Jan 2018	-		6.255	Continuing	Continuing	Continuing
Government Engineering Support	WR	NAWCAD : Patuxent River, MD	0.000	0.000		3.410	Mar 2017	3.361	Nov 2017	-		3.361	Continuing	Continuing	Continuing
Program Management Support	WR	NAWCAD : Patuxent River, MD	0.000	0.000		2.987	Mar 2017	2.220	Nov 2017	-		2.220	Continuing	Continuing	Continuing
Program Management Support	Various	Various : Various	0.000	0.000		0.000		0.794	Jan 2018	-		0.794	Continuing	Continuing	Continuing
Travel	WR	NAVAIR : Patuxent River, MD	0.000	0.000		0.051	Dec 2016	0.050	Feb 2018	-		0.050	Continuing	Continuing	Continuing
		Subtotal	0.000	0.000		15.117		12.680		-		12.680	-	-	-

	Prior Years	FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.000		54.599		53.512		-		53.512	-	-	-

Remarks

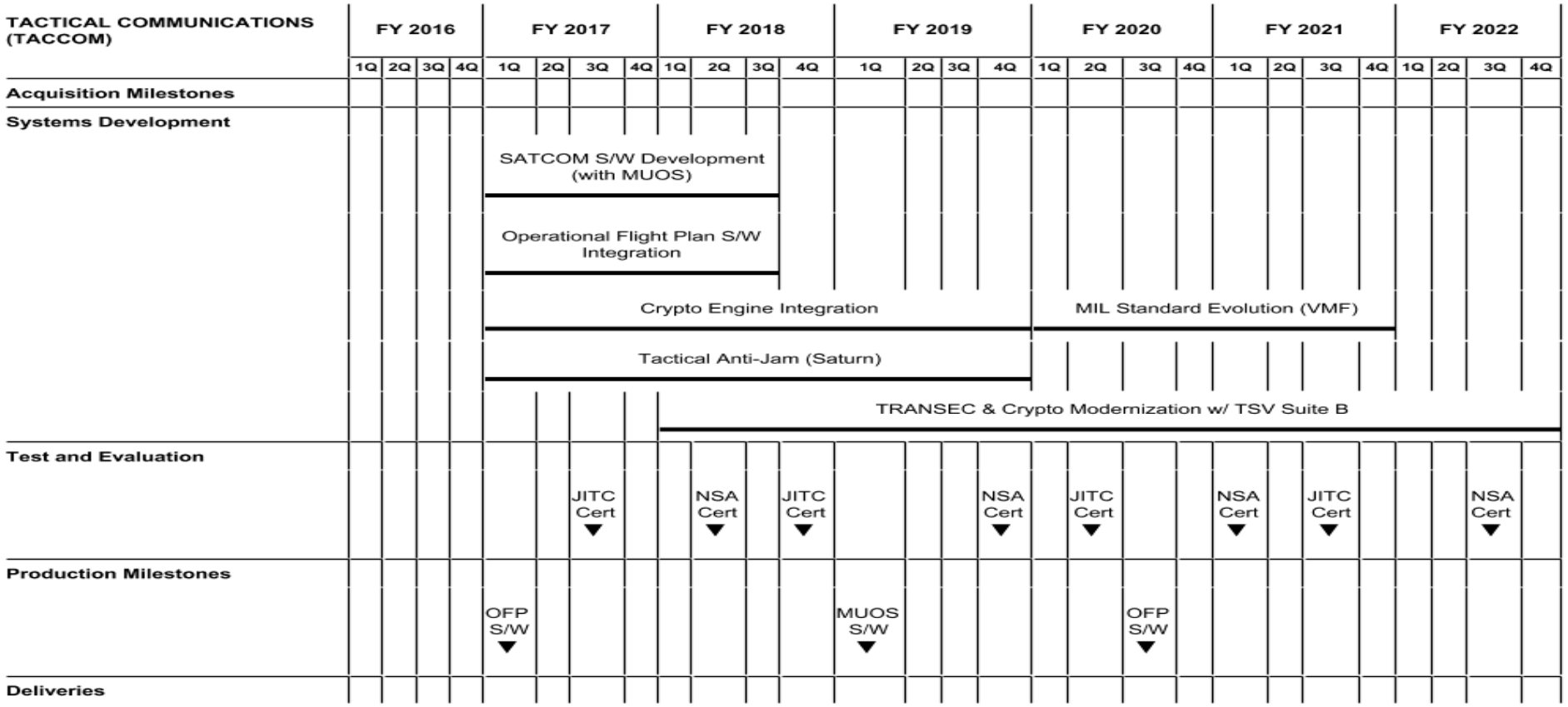
(U) Common Avionics schedule FY16 and prior is reflected in PE 0604215N, Project Unit 0572.

Exhibit R-4, RDT&E Schedule Profile: FY 2018 Navy		Date: May 2017
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0605217N / *(U)Common Avionics*	**Project (Number/Name)** 0572 / *JT Service/NV Std Avionics CP/SB*



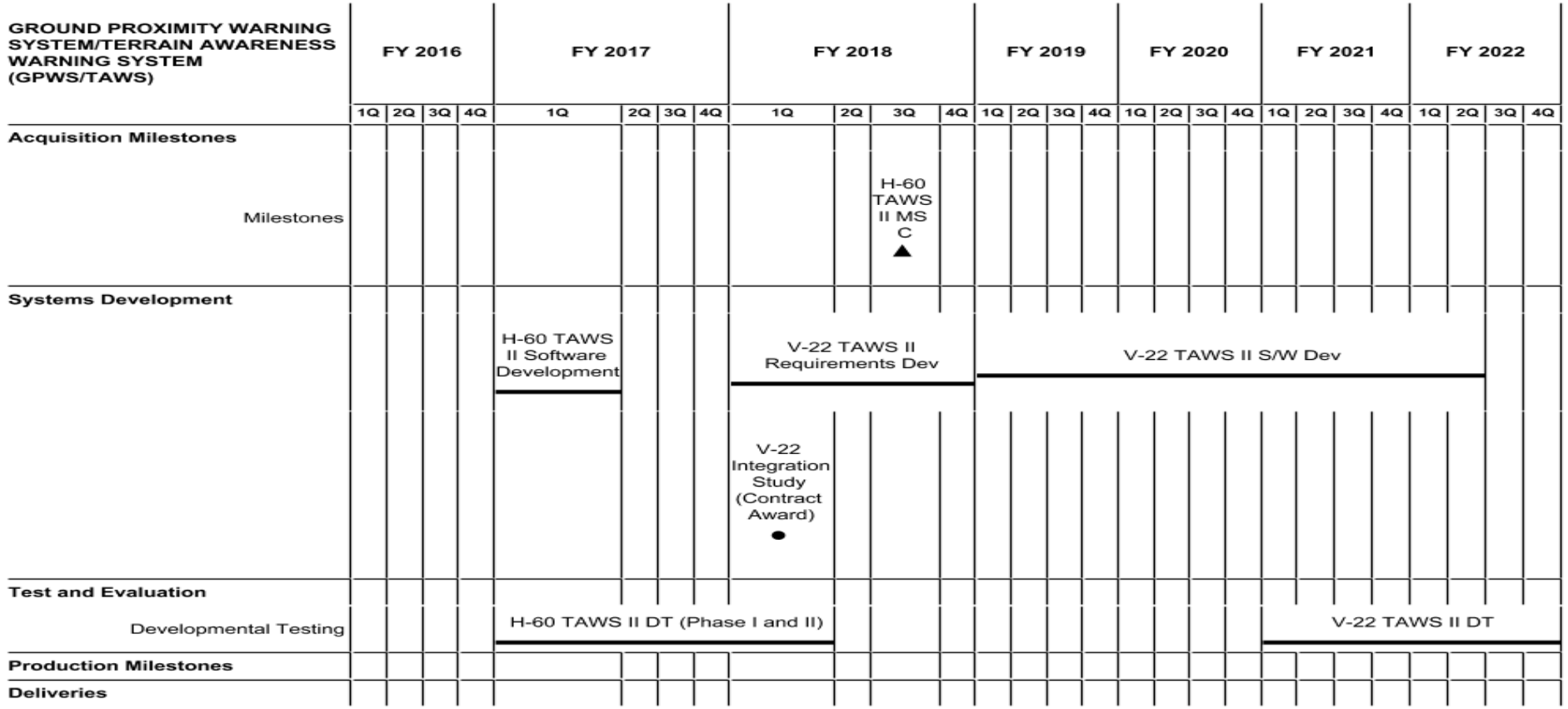
2018PB - 0605217N - 0572

Exhibit R-4, RDT&E Schedule Profile: FY 2018 Navy		Date: May 2017
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0605217N / *(U)Common Avionics*	**Project (Number/Name)** 0572 / *JT Service/NV Std Avionics CP/SB*



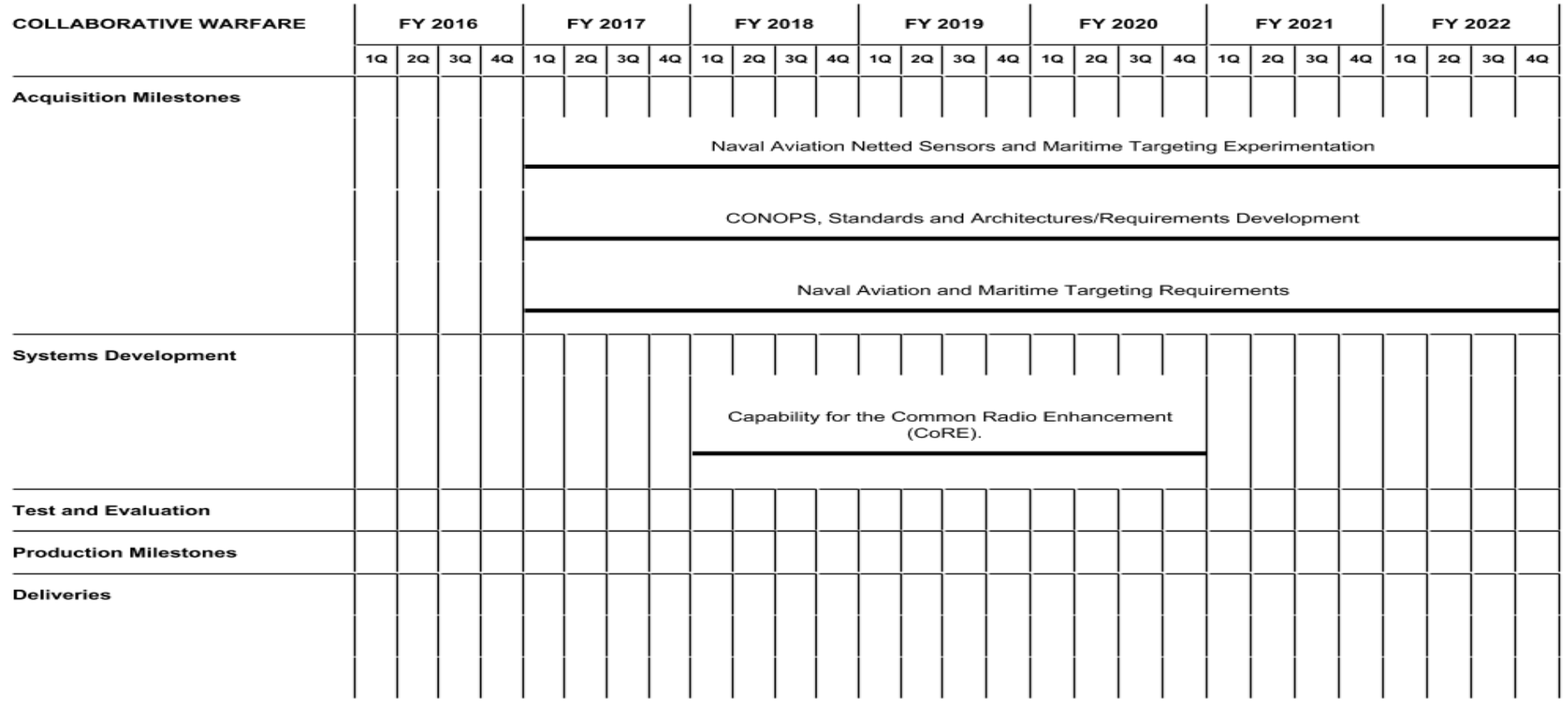
2018PB - 0605217N - 0572

Exhibit R-4, RDT&E Schedule Profile: FY 2018 Navy		Date: May 2017
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0605217N / *(U)Common Avionics*	**Project (Number/Name)** 0572 / *JT Service/NV Std Avionics CP/SB*



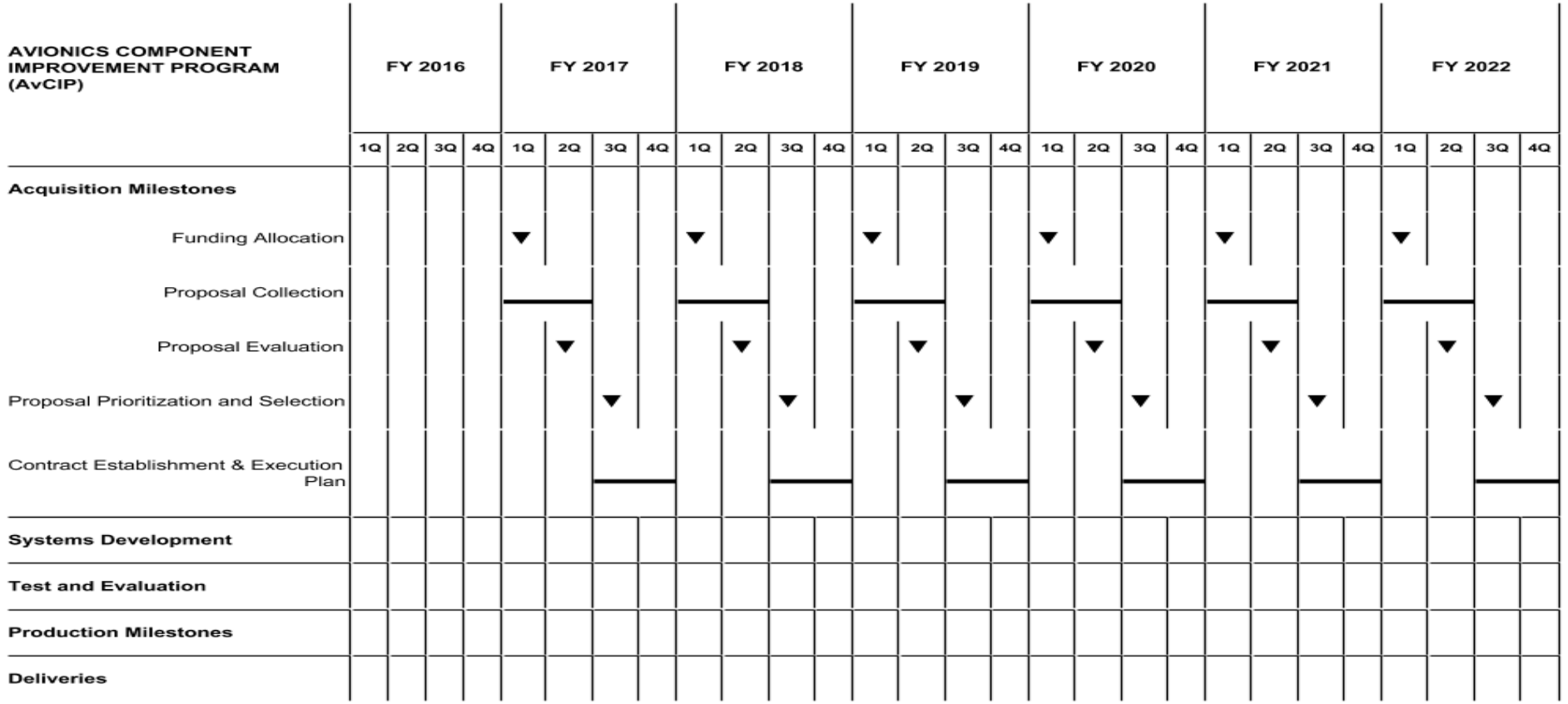
2018PB - 0605217N - 0572

Exhibit R-4, RDT&E Schedule Profile: FY 2018 Navy		Date: May 2017
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0605217N / *(U)Common Avionics*	**Project (Number/Name)** 0572 / *JT Service/NV Std Avionics CP/SB*



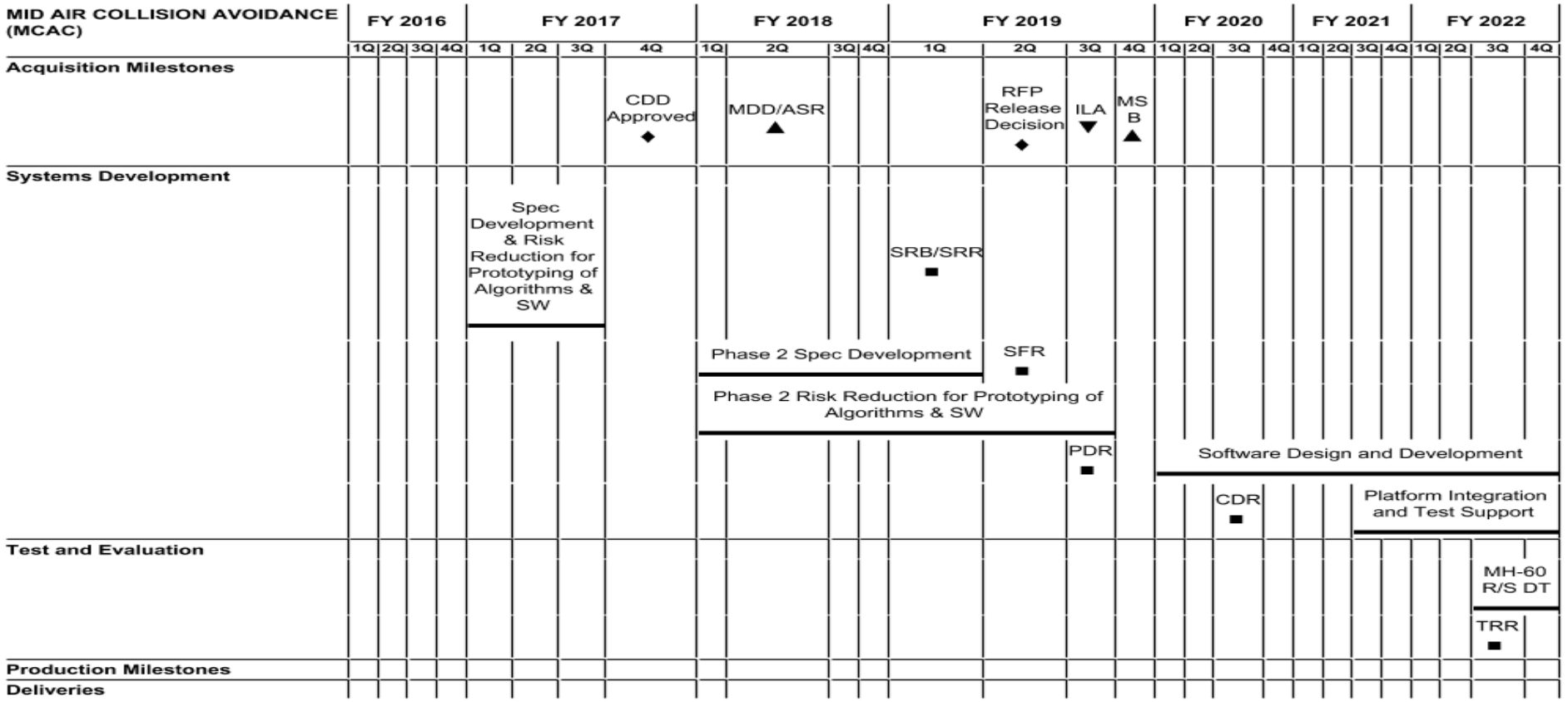
2018PB - 0605217N - 0572

Exhibit R-4, RDT&E Schedule Profile: FY 2018 Navy		Date: May 2017
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0605217N / *(U)Common Avionics*	**Project (Number/Name)** 0572 / *JT Service/NV Std Avionics CP/SB*



2018PB - 0605217N - 0572

Exhibit R-4, RDT&E Schedule Profile: FY 2018 Navy		Date: May 2017
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0605217N / *(U)Common Avionics*	**Project (Number/Name)** 0572 / *JT Service/NV Std Avionics CP/SB*



2018PB - 0605217N - 0572

Exhibit R-4A, RDT&E Schedule Details: FY 2018 Navy		Date: May 2017
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0605217N / *(U)Common Avionics*	**Project (Number/Name)** 0572 / *JT Service/NV Std Avionics CP/SB*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
COMMUNICATIONS, NAVIGATION, SURVEILLANCE/AIR TRAFFIC MGMT (CNS/ ATM)				
Systems Development: Evaluate ADS-BO technologies/develop solutions to support platform integrations	1	2017	4	2022
Systems Development: Develop CNS/ATM Common Component to support RNP RNAV developmental platform requirements	1	2017	4	2022
Test and Evaluation: CNS/ATM technologies/certification of developmental platforms	1	2017	4	2022
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, ADS-B Out	1	2017	4	2019
TACTICAL COMMUNICATIONS (TACCOM)				
Systems Development: GEN5 Integrated Waveform Satellite Communications (SATCOM) S/W Development	1	2017	3	2018
Systems Development: Operational Flight Plan	1	2017	3	2018
Systems Development: Crypto Engine Integration	1	2017	4	2019
Systems Development: MIL Standard Evolution (VMF)	1	2020	4	2021
Systems Development: Tactical Anti-Jam (Saturn)	1	2017	4	2019
Systems Development: Transmission Security (TRANSEC) & Crypto Modernization w/ Tactical Secure Voice (TSV) Suite B	1	2018	4	2022
Test and Evaluation: NSA Cert 1	1	2021	1	2021
Test and Evaluation: JITC Cert 1	3	2017	3	2017
Test and Evaluation: NSA Cert 2	2	2018	2	2018
Test and Evaluation: JITC Cert 2	4	2018	4	2018
Test and Evaluation: NSA Cert 3	4	2019	4	2019
Test and Evaluation: JITC Cert 3	2	2020	2	2020

Exhibit R-4A, RDT&E Schedule Details: FY 2018 Navy		Date: May 2017
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0605217N / *(U)Common Avionics*	**Project (Number/Name)** 0572 / *JT Service/NV Std Avionics CP/SB*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Test and Evaluation: JITC Cert 4	3	2021	3	2021
Test and Evaluation: NSA Cert 4	3	2022	3	2022
Production Milestones: OFP S/W 1	1	2017	1	2017
Production Milestones: MUOS S/W	1	2019	1	2019
Production Milestones: OFP S/W 2	3	2020	3	2020
GROUND PROXIMITY WARNING SYSTEM/TERRAIN AWARENESS WARNING SYSTEM (GPWS/TAWS)				
Acquisition Milestones: Milestones: H-60 TAWS II MS C	3	2018	3	2018
Systems Development: H-60 TAWS II Software Development	1	2017	1	2017
Systems Development: V-22 TAWS II Requirements Development	1	2018	4	2018
Systems Development: V-22 TAWS II Software Development	1	2019	2	2022
Systems Development: V-22 CFIT Integration Study	1	2018	1	2018
Test and Evaluation: Developmental Testing: H-60 TAWS II DT (Phase I and II)	1	2017	1	2018
Test and Evaluation: Developmental Testing: V-22 TAWS II DT	1	2021	4	2022
COLLABORATIVE WARFARE				
Acquisition Milestones: Naval Aviation Netted Sensors and Maritime Targeting Experimentation	1	2017	4	2022
Acquisition Milestones: Netted Sensors CONOPS, Standards and Architectures/ Requirements Development	1	2017	4	2022
Acquisition Milestones: Naval Aviation and Maritime Targeting Requirements	1	2017	4	2022
Systems Development: Capability for the Common Radio Enhancement (CoRE)	1	2018	4	2020
AVIONICS COMPONENT IMPROVEMENT PROGRAM (AvCIP)				
Acquisition Milestones: Funding Allocation: Funding Allocation1	1	2017	1	2017
Acquisition Milestones: Funding Allocation: Funding Allocation2	1	2018	1	2018
Acquisition Milestones: Funding Allocation: Funding Allocation3	1	2019	1	2019
Acquisition Milestones: Funding Allocation: Funding Allocation4	1	2020	1	2020
Acquisition Milestones: Funding Allocation: Funding Allocation5	1	2021	1	2021

Exhibit R-4A, RDT&E Schedule Details: FY 2018 Navy		Date: May 2017
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0605217N / *(U)Common Avionics*	**Project (Number/Name)** 0572 / *JT Service/NV Std Avionics CP/SB*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Acquisition Milestones: Funding Allocation: Funding Allocation6	1	2022	1	2022
Acquisition Milestones: Proposal Collection: Proposal Collection1	1	2017	2	2017
Acquisition Milestones: Proposal Collection: Proposal Collection2	1	2018	2	2018
Acquisition Milestones: Proposal Collection: Proposal Collection3	1	2019	2	2019
Acquisition Milestones: Proposal Collection: Proposal Collection4	1	2020	2	2020
Acquisition Milestones: Proposal Collection: Proposal Collection5	1	2021	2	2021
Acquisition Milestones: Proposal Collection: Proposal Collection6	1	2022	2	2022
Acquisition Milestones: Proposal Evaluation: Proposal Evaluation1	2	2017	2	2017
Acquisition Milestones: Proposal Evaluation: Proposal Evaluation2	2	2018	2	2018
Acquisition Milestones: Proposal Evaluation: Proposal Evaluation3	2	2019	2	2019
Acquisition Milestones: Proposal Evaluation: Proposal Evaluation4	2	2020	2	2020
Acquisition Milestones: Proposal Evaluation: Proposal Evaluation5	2	2021	2	2021
Acquisition Milestones: Proposal Evaluation: Proposal Evaluation6	2	2022	2	2022
Acquisition Milestones: Proposal Prioritization and Selection: Proposal Prioritization and Selection1	3	2017	3	2017
Acquisition Milestones: Proposal Prioritization and Selection: Proposal Prioritization and Selection2	3	2018	3	2018
Acquisition Milestones: Proposal Prioritization and Selection: Proposal Prioritization and Selection3	3	2019	3	2019
Acquisition Milestones: Proposal Prioritization and Selection: Proposal Prioritization and Selection4	3	2020	3	2020
Acquisition Milestones: Proposal Prioritization and Selection: Proposal Prioritization and Selection5	3	2021	3	2021
Acquisition Milestones: Proposal Prioritization and Selection: Proposal Prioritization and Selection6	3	2022	3	2022
Acquisition Milestones: Contract Establishment & Execution Plan: Contract Establishment & Execution Plan1	3	2017	4	2017

Exhibit R-4A, RDT&E Schedule Details: FY 2018 Navy		Date: May 2017
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0605217N / *(U)Common Avionics*	**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 Plan2	3	2018	4	2018
Acquisition Milestones: Contract Establishment & Execution Plan: Contract Establishment & Execution Plan3	3	2019	4	2019
Acquisition Milestones: Contract Establishment & Execution Plan: Contract Establishment & Execution Plan4	3	2020	4	2020
Acquisition Milestones: Contract Establishment & Execution Plan: Conract Establishment & Execution Plan5	3	2021	4	2021
Acquisition Milestones: Contract Establishment & Execution Plan: Conract Establishment & Execution Plan6	3	2022	4	2022
MID AIR COLLISION AVOIDANCE (MCAC)				
Acquisition Milestones: MDD/ASR	2	2018	2	2018
Acquisition Milestones: RFP Release Decision	2	2019	2	2019
Acquisition Milestones: CDD Approved	4	2017	4	2017
Acquisition Milestones: Integrated Logistics Assessment	3	2019	3	2019
Acquisition Milestones: MS B	4	2019	4	2019
Systems Development: Spec Development & Risk Reduction for Prototyping of Algorithms & SW	1	2017	3	2017
Systems Development: SRB/SRR	1	2019	1	2019
Systems Development: Phase 2 Spec Development	1	2018	1	2019
Systems Development: SFR	2	2019	2	2019
Systems Development: Phase 2 Risk Reduction for Prototyping of Algorithms & SW	1	2018	3	2019
Systems Development: PDR	3	2019	3	2019
Systems Development: Software Design and Development	1	2020	4	2022
Systems Development: CDR	3	2020	3	2020
Systems Development: Platform Integration	3	2021	4	2022
Test and Evaluation: MH-60 R/S DT	3	2022	4	2022
Test and Evaluation: TRR	3	2022	3	2022

Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy			Date: May 2017
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605217N / *(U)Common Avionics*	Project (Number/Name) 3425 / *Digital Warfare Office (DWO) MBE&DT Development*	

COST ($ in Millions)	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
3425: *Digital Warfare Office (DWO) MBE&DT Development*	0.000	0.000	0.000	4.651	-	4.651	6.350	8.500	8.300	8.300	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Chief of Naval Operations concurred with the Task Force Netted Navy recommendation to stand up the Digital Warfare Office (DWO) to set requirements, prioritize resources, and lead efforts on information interoperability and human/machine teaming.

NAVAIR, NAVSEA, SPAWAR, associated Program Executive Offices, warfare and system centers and University Affiliated Research Centers/Federally Funded Research and Development Centers will support the Model Based Engineering, Technical Design, and Requirements branches in the new DWO under OPNAV N2N6. In order to develop capability from the top down, the DWO will develop requirements for the system of systems to include all of the associated interoperability requirements. Due to the complexity of this work, the DWO will evolve the traditional requirements development methodology to a model based systems engineering environment that will include associated model extensions, reports, views, configuration management, help desk support, and documentation. This work will be completed by a series of teams, each focused on a separate threat domain, and made up of system modelers, fleet representatives, program of record representatives, architecture and interoperability experts, etc. The products generated by these teams will include data technical baselines for domain areas with individual profiles for each program of record, coordinated requirements recommendations, and potential areas for S&T and experimentation to fill gaps. The DWO will also explore emerging digital technologies including human/machine teaming.

Each SYSCOM will be involved in creating Data Technical Baseline (DTB) profiles specific for each program of record. DTBs may consist of interfaces, protocols, content, information quality, architectural aspects, and knowledge base frameworks. SYSCOMs will exercise technical authority to assess Program of Record compliance to DTBs and Key Performance Parameters in support of gate reviews and system engineering technical reviews.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Title: DIGITAL WARFARE OFFICE	0.000	0.000	4.651	0.000	4.651
Articles:	-	-	-	-	-
FY 2016 Accomplishments: N/A					
FY 2017 Plans: N/A					
FY 2018 Base Plans:					

Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy		Date: May 2017
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0605217N / *(U)Common Avionics*	**Project (Number/Name)** 3425 / *Digital Warfare Office (DWO) MBE&DT Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Provide Subject Matter Expert (SME) support for the domain functional decomposition based on prioritized mission areas. Support the analytical agenda from OPNAV N81 and N9I for the specific mission area capabilities. Provide modeling and documentation support for Joint Capability Integration Development System (JCIDS), OPNAV Program Objective Memorandum (POM) process, and ASN (RD&A) Acquisition Process. Coordinate and work across the SYSCOMs and PEOs on the OPNAV Model Based Systems Engineering (MBSE) requirements allocation process. Participate in the definition of MBSE tool functionality and views based on Echelon I stakeholder requirements. Collaboratively develop tool extensions to complement JCIDS and POM processes. Support development of cross-SYSCOM Modeling Standards and Policies for Science and Technology and Program of Records. Create models in the modeling environment. Provide SME support for data science teams in data exploration and analysis, information and knowledge extraction techniques, and application to mission area data requirements. Provide engineering inputs to and review Navy Integrated Capability Concepts for data architecture consistencies. Explore Machine Learning techniques to support human/machine teaming for decision making. Develop an overarching Data Technical Baseline (DTB) and DTB profiles for Program of Records (POR) under SYSCOM cognizance. Assess PORs against their DTB profile during all Systems Engineering Technical Review events and gate reviews. Provide common infrastructure for MBSE and DTB environments, to include access management, configuration management, and help desk support. ***FY 2018 OCO Plans:*** N/A					
Accomplishments/Planned Programs Subtotals	0.000	0.000	4.651	0.000	4.651

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy		Date: May 2017
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0605217N / *(U)Common Avionics*	**Project (Number/Name)** 3425 / *Digital Warfare Office (DWO) MBE&DT Development*

D. Acquisition Strategy

Procurement strategy is determined by market survey and cooperative opportunities.

E. Performance Metrics

The Digital Warfare Office will set requirements, prioritize resources, and lead efforts on information interoperability and human/machine teaming. This will result in a workforce that is trained in new systems engineering and modeling concepts and tools. It will also result in development of a requirements modeling environment to include associated model extensions, reports, views, and configuration management and in the development of digital technical baselines for programs to use to ensure cross-domain interoperability.