Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Navy											Date: April 2022	
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 Common Avionics*							
COST ($ in Millions)	**Prior Years**	**FY 2021**	**FY 2022**	**FY 2023 Base**	**FY 2023 OCO**	**FY 2023 Total**	**FY 2024**	**FY 2025**	**FY 2026**	**FY 2027**	**Cost To Complete**	**Total Cost**
Total Program Element	168.776	52.279	60.117	77.960	-	77.960	65.411	59.858	64.601	65.569	Continuing	Continuing
0572: *JT Service/NV Std Avionics CP/SB*	168.776	52.279	60.117	77.960	-	77.960	65.411	59.858	64.601	65.569	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.

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 total cost of the Digital Interoperability (DI)/Marine Air Ground Task Force (MAGTF) Agile Networking Gateway Link (MANGL) (DI/MANGL) Middle Tier of Acquisition effort is $139.9 million, including RDT&E and procurement of prototype units. The DI/MANGL is fully funded across the Future Years Defense Program.

B. Program Change Summary ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget	53.782	60.117	0.000	-	0.000
Current President's Budget	52.279	60.117	77.960	-	77.960
Total Adjustments	-1.503	0.000	77.960	-	77.960
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-1.503	0.000			
• Program Adjustments	0.000	0.000	0.000	-	0.000
• Rate/Misc Adjustments	0.000	0.000	0.000	-	0.000
• Adjustments to Budget Year	-	-	77.960	-	77.960

Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Navy	Date: April 2022
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Change Summary Explanation

Schedule:

Ground Proximity Warning System/Terrain Awareness System (GPWS/TAWS II): Changes incorporated to shift follow on platform integration from V-22 to H-1 platform for TAWS II 2nd Increment to align with platform schedules.
FY22: V-22 TAWS II Software Development FB1 1Q/22 to 4Q/22 updated to H-1 TAWS II Requirements Development 2Q/22 to 1Q/23; H-1 TAWS II Software Development FB1 4Q/22 to 3Q/23.

Digital Interoperability (DI)/Marine Air Ground Task Force (MAGTF) Agile Networking Gateway Link (MANGL): Changes are due to HQMC technical correction from APN-5 to RDT&E (zero-sum) and HQMC program wholeness issue to support Software Reconfigurable Payload (SRP) redesign and development for changes in Tactical Targeting Network Technology (TTNT) Dual Power Amplifier (DPA) and Link 16 waveform integration due to new Federal Aviation Administration (FAA) Link 16 certification requirements and fielding.
FY22: Change Qual Testing start date from 2Q/22 to 1Q/23. Change Cyber Security Tabletop from 3Q/22 to 3Q/23. Change Flt Demo Test/Report start date from 3Q/22 to 1Q/24. Test Articles Delivery Qty 4 from 2Q/22 to 4Q/23.

FY 2023 funding increase reflects the fact that the FY 2022 President’s Budget request did not include out-year funding.

Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy			Date: April 2022
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605217N / *Common Avionics*	Project (Number/Name) 0572 / *JT Service/NV Std Avionics CP/SB*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
0572: *JT Service/NV Std Avionics CP/SB*	168.776	52.279	60.117	77.960	-	77.960	65.411	59.858	64.601	65.569	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Note

(U) Common Avionics 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), Avionics Architectures Team (AAT), Digital Interoperability (DI)/Marine Air Ground Task Force (MAGTF) Agile Networking Gateway Link (MANGL), and Common Mission Computing and Displays (CMCD). 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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Joint Service Review Committee for Avionics Standardization (JSRC-AS)	0.713	0.831	0.793	0.000	0.793
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 2022 Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0605217N / *Common Avionics*	**Project (Number/Name)** 0572 / *JT Service/NV Std Avionics CP/SB*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
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 2023 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 2023 OCO Plans:*** N/A ***FY 2022 to FY 2023 Increase/Decrease Statement:*** There is no significant change from FY22 to FY23.					
Title: Communication Navigation Surveillance/Air Traffic Management (CNS/ATM)	0.127	0.140	0.144	0.000	0.144
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 2022 Plans:*** Continue to evaluate technologies and develop solutions to support platform integrations. ***FY 2023 Base Plans:*** Continue to evaluate technologies and develop solutions to support platform integrations. ***FY 2023 OCO Plans:*** N/A ***FY 2022 to FY 2023 Increase/Decrease Statement:***					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0605217N / *Common Avionics*	**Project (Number/Name)** 0572 / *JT Service/NV Std Avionics CP/SB*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
There is no significant change from FY22 to FY23.					
Title: Tactical Communications (TACCOM)	10.443	16.504	18.530	0.000	18.530
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) Advanced Crypto Capability (ACC) 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), Single Channel Ground and Airborne Radio System (SINCGARS), Enhanced SINCGARS Improvement Program (E-SIP), SINCGARS Cryptographic Modernization with TSV 3.1.1, 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, Link 16 and Link 22.

FY 2022 Plans:
Complete Crypto Modernization Gen6 TRANSEC & TSV Suite B. Award development of Gen5 TSV 3.1.1 crypto modernization, Single Channel Ground and Airborne Radio System (SINCGARS 3.1), Advanced Crypto Capabilities (ACC) modernization and Second Generation Anti-Jam Tactical UHF Radio for NATO (SATURN Ed. 4). Attain Gen6 JITC/Gen5 NSA Certifications. Release Gen6 Ver 0004. Attain approval of Gen5/6 TSV 3.1.1 ECP.

FY 2023 Base Plans:
Continue software development of Gen5A/Gen6 TSV 3.1.1 crypto modernization, Single Channel Ground and Airborne Radio System (SINCGARS 3.1), Advanced Crypto Capabilities (ACC) modernization, Mobile User Objective System (MUOS) 3.1 and Second Generation Anti-Jam Tactical UHF Radio for NATO (SATURN Ed. 4). Attain Gen5 JITC Certification. Attain approval of Gen5/6 Data link ECP. Release Gen5 Ver 008.

FY 2023 OCO Plans:

Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy		Date: April 2022
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
N/A ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Increase of $2.026 million from FY22 to FY23 is required to fund Advanced Waveform Integration including NSA cryptographic mandates for Tactical Secure Voice 3.1.1 algorithm and Mobile User Objective System (MUOS) Advanced Crypto Capability (ACC) requirements.					
Title: Ground Proximity Warning System/Terrain Awareness Warning System (GPWS/TAWS II)	4.204	8.009	8.362	0.000	8.362
Articles:	-	-	-	-	-
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. 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 2022 Plans:*** Start on H-60 TAWS II Software Development FB4. Complete Lockheed Martin SC-2X Integration Testing FB3. Complete H-60 DT-3 Flight Test. Initiate H-60 ILA. End V-22 TAWS II requirements development, shift to H-1 TAWS II requirements development. Initiate H-1 TAWS II Software Development FB1. ***FY 2023 Base Plans:*** Deliver H-60 TAWS II FB4. Complete H-1 TAWS II Requirements Development. Award H-1 Integration contract. Complete H-1 TAWS II Software Development for FB1. Complete Lockheed Martin SC-2X Integration Testing FB4. Initiate Northrop Grumman/Bell Flight Integration Testing FB1. Complete H-60 TAWS II DT4. Complete Integrated Logistics Assessment for H-60 TAWS II. Deliver H-1 TAWS II FB1. ***FY 2023 OCO Plans:*** N/A ***FY 2022 to FY 2023 Increase/Decrease Statement:***					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy		Date: April 2022
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Increase of $0.353 million from FY22 to FY23 is due to prime vendor integration contract award for H-1.					
Title: Collaborative Warfare (CW)	0.247	0.107	0.000	0.000	0.000
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 maritime targeting gaps for naval aircraft to operate more effectively with other military services. The following efforts are included but are not limited to: 1) Comprehensive naval aviation and maritime targeting cyber-resilient requirements that map fleet gaps and requirements to cross-platform naval aviation solutions. 2) Netted sensors and maritime targeting proof of concept prototype experiments and demonstrations with the Defense Advanced Research Projects Agency (DARPA) and Office of Naval Research (ONR) Future Naval Capability. Mature cyber-resilient technologies for practical application across Naval Aviation platforms, the Navy, and Joint Services. 3) Developing cyber-resilient architecture and implementation standards in support of broad Naval Aviation program integration. 4) Integrating Naval Aviation cyber-resilient requirements and Navy control system architectures for broad Naval Aviation programs. ***FY 2022 Plans:*** Continue to develop cyber-resilient requirements, standards, and architectures that assure netted-sensors' Concept of Operations and capabilities. ***FY 2023 Base Plans:*** N/A ***FY 2023 OCO Plans:*** N/A ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Decrease of $0.107 million from FY22 to FY23 is due to realignment of funding to align with correct Resource Sponsor and Branch performing this work.					
Title: Avionics Component Improvement Program (AvCIP)	6.345	5.016	5.186	0.000	5.186
Articles:	-	-	-	-	-
Description: Investigate high value Return On Investment component improvement candidate projects. Design and develop solutions that correct avionics systems reliability, performance and sustainment deficiencies in support of NAVAIR Commander's Strategic Imperatives of 'Aligning existing resources to better support today's Readiness' and 'Increase Speed of Products to the Fleet.' Stop operating and sustainment cost growth by					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy		Date: April 2022
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
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 aviation electronics 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). ***FY 2022 Plans:*** Address current fleet problem avionics systems (top readiness degraders, cost drivers, obsolescence-driven sustainability, capability loss, fleet head-hurters). ***FY 2023 Base Plans:*** Address current fleet problem avionics systems (top readiness degraders, cost drivers, obsolescence-driven sustainability, capability loss, fleet head-hurters). ***FY 2023 OCO Plans:*** N/A ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Increase of $0.170 million from FY22 to FY23 is due to increase in Primary Hardware Development for AVCIP projects.					
Title: Avionics Architecture Team (AAT)	9.583	10.373	10.370	0.000	10.370
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 direct response to the Modular Open Systems Architecture (MOSA) requirement in accordance with 10 U.S.C. 2446a-2446c; Tri-Service Memorandum for Service Acquisition Executives and Program Executive Officers, 07 Jan 2019; FY17 National Defense Authorization Act (NDAA) Section 801 Open Architecture language and Section 861 Implementation of Modular Open Systems					

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Architecture Requirements, 23 Dec 2016; FY21 NDAA Sec. 804 - Implementation of Modular Open Systems Architecture requirements, 01 Jan 2021; DoD Directive 5000.1; N6/N7 Naval Open Architecture Requirements Letter 9010, Ser. N6N7/5U916276; and SECNAVINST 5000.2F, 26 Mar 2019. The Software Open Systems Technologies (SWOST) includes the Future Airborne Capability Environment (FACE) Technical Standard. This 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 developed through government and academia collaboration and is provided to industry for prototyping and implementation efforts. The Functional Architecture for Strategic Reuse (FASTR) initiative, through Platform Integration and Modeling, 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 AAT will also provide Subject Matter Experts directly to weapons systems/platforms to support inclusion of Open Architecture Standards in the early stages of life cycle development. The results will enable Department of Defense (DoD) weapons systems/platforms 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 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. ***FY 2022 Plans:*** Provide development support, mission based engineering, systems engineering and program management for design and acquisition strategy implementation guidance, and demonstrate interoperability of the standards. 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. Implement Small Form Factor standards into the HOST environment, supporting UAV and other type platforms. 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, Air Force and international partners. Support the implementation of Naval Aviation's data model strategy. Provide subject Matter Expert					

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
support for platform integration and competitive source selection. Academia prototyping and demonstration efforts for Future Airborne Capability Environment (FACE), Functional Architecture for Strategic Reuse (FASTR) and Hardware Open Systems Technologies (HOST) initiatives. ***FY 2023 Base Plans:*** Provide development support, mission based engineering, systems engineering and program management for design and acquisition strategy implementation guidance, and demonstrate interoperability of the standards. Generate revisions for future editions of the Future Airborne Capability Environment (FACE) Technical Standard based on issues identified by government and industry consortium and develop corresponding conformance tools. Incorporate new hardware technologies and develop Tier 2 HOST specifications to support widely adopted commercial technologies and to integrate with platform requirements. Provide input to platforms developing Tier 3 and Tier 4 HOST specifications. Implement Small Form Factor standards into the HOST environment, supporting UAV and other type platforms. 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. Provide Naval Air Enterprise Subject Matter Expertise and documentation support for OSD's Modular Systems Working Group, supporting Congressional and DoD directed Open Architecture development. Generate alignment strategies for a comprehensive open architecture approach between Navy, Army, Air Force and international partners. 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 Future Airborne Capability Environment (FACE), Functional Architecture for Strategic Reuse (FASTR) and Hardware Open Systems Technologies (HOST) initiatives. ***FY 2023 OCO Plans:*** N/A ***FY 2022 to FY 2023 Increase/Decrease Statement:*** There is no significant change from FY22 to FY23.					
Title: Digital Interoperability (DI) / Marine Air Ground Task Force (MAGTF) Agile Networking Gateway Link (MANGL) ***Articles:*** ***Description:*** Digital Interoperability (DI) is the United States Marine Corps' strategy to bridge multiple generations of technology using three matured technologies; gateways, software defined radios, and Commercial Off-The-Shelf (COTS) interfaces. This modular developmental approach enables iterative migration to advanced waveforms and payloads while providing enhanced digital connectivity between forces using dissimilar technologies. DI will enable fleet integration of new capabilities on COTS tablets and Government Off-	20.617 4	18.872 3	34.060 -	0.000 -	34.060 -

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
The-Shelf (GOTS) applications. DI will also enable logistics tracking and reporting (cargo and personnel) with the use of Radio Frequency Identification technology, advanced Electronic Warfare/Cyber capability, and threat data capturing/off-boarding. The architecture establishes the foundation to enable system performance data off-boarding, as well as data fusion and artificial intelligence augmentation capabilities. Development and testing of MANGL components, to include Software Reconfigurable Payload (SRP), gateways and tablets, in Hub and Spoke configurations for MV-22B. Translates messages from one tactical data link to another (i.e. Link 16 to Adaptive Networking Wideband Waveform [ANW2]) with a tactically proven gateway, thereby leveraging previous investments. Provides the foundation for Command, Control, Communications, Electromagnetic Spectrum Operations, and Intelligence exploitation of platform/sensor data off-boarding, data fusion, and distributed processing. Enables real-time blue force situational awareness and improved decision-making through the sharing of a Common Operational Picture, including friendly force positions, capabilities, and threat information for both the aircrew and embarked troops. Provides for operations in denied and degraded environments, enables range extension and distributed operations. SRP 2.0 is a single common payload module that is government configuration controlled architecture, and reconfigurable to support simultaneous missions and applications making maximum use of available bandwidth and ensuring interoperability all with a cyber-secure, National Security Agency (NSA) approved, cryptographic solution. There are earlier versions of the SRP (1.0 and 1.5) operationally deployed in other naval platforms. SRP 2.0 provides an imminently upgradable platform for eventual inclusion of Low Probability of Intercept (LPI)/ Low Probability of Detection (LPD) and advanced mesh waveforms for the exchange of tactical data, imagery, and video. Incorporation of new waveforms can be accomplished within 18 months vice the 36 to 48 months required for integration and initial fielding using traditional approaches. ***FY 2022 Plans:*** Continue Middle Tier of Acquisition Rapid Prototyping effort to design, develop and obtain Design Review Approval. Continue with MV-22 integration and logistics analysis. Award contract of 3 Test Articles. Continue with Seasite Lab/MULE Lab/MV-22 Systems Integration Lab (SIL) build-up to support testing. ***FY 2023 Base Plans:*** Continue Middle Tier of Acquisition Rapid Prototyping effort to design, develop and deliver four (4) MANGL test articles. Continue with MV-22 integration and logistics analysis. Complete Cyber Security Tabletop. Complete					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy		Date: April 2022
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Seasite Lab/Multi-Use Lab Environment (MULE) Lab/MV-22 Systems Integration Lab (SIL) build-up to support testing. Conduct aircraft ground/Qual testing. ***FY 2023 OCO Plans:*** N/A ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Increase of $15.188 million from FY22 to FY23 is required to support Software Reconfigurable Payload (SRP) redesign and development for changes in Tactical Targeting Network Technology (TTNT) Dual Power Amplifier (DPA) and Link 16 waveform integration due to new Federal Aviation Administration (FAA) Link 16 certification requirements and fielding.					
Title: Common Mission Computing and Displays (CMCD) ***Articles:*** ***Description:*** The Common Mission Computing and Displays (CMCD) program enables the development, procurement, integration, test and fielding of common capabilities through the use of commercial off the shelf mission computing and displays products as part of the CMCD family of systems across multiple platforms. As part of CMCD, the Mission Computer Alternative (MCA) provides for a current state technology common mission computing baseline across multiple legacy aircraft platforms to include the T-45 Goshawk, F/A-18E/F, EA-18G and E-2D Hawkeye. MCA allows for Technology Refresh and cyber protection activities to be conducted throughout the life cycle of the mission computer in the Multi-Use Laboratory Environment (MULE) in a proactive manner. The MULE will also evaluate cyber solutions in accordance with the processes defined in the Risk Management Framework for cyber protections. Mission Computer Alternative (MCA) will enable platforms to remain relevant and quickly gain a tactical edge with new capabilities without waiting years for the traditional mission computer redesign, test and fielding process. Also, part of the CMCD program is the Common Display Alternatives (CDA) initiative to increase pilot tactical and situational awareness and improve the man-machine interface for naval aviators. The CDA initiative evaluates military aircraft platform requirements and commercial aircraft display products for applicability to those military aircraft platforms. Commercial displays are known for their high reliability and the incorporation of the latest technologies. ***FY 2022 Plans:*** Conduct assessments of MCA platform processing needs through organic based MULE lab activities to enhance the MCA. Initiate planning for Technology and Capability Insertions and leveraging those capabilities across multiple legacy platforms. Conduct an evaluation of the T-45 MCA processing requirements in support of	0.000 -	0.265 -	0.515 -	0.000 -	0.515 -

Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy		Date: April 2022
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
the platforms plans for integrating the replacement Heads Up Display (HUD) in the cockpit. Identify potential replacement processors, new interfaces and increased memory needs. ***FY 2023 Base Plans:*** Conduct assessments of MCA platform processing needs through organic based MULE lab activities to enhance the MCA and cyber protection capabilities. Initiate planning for Technology and Capability Insertions and leveraging those capabilities across multiple legacy platforms. Conduct an evaluation of the T-45 MCA processing requirements in support of the platforms plans for integrating the replacement HUD in the cockpit. Identify and evaluate potential replacement processors, new interfaces and increased memory needs. ***FY 2023 OCO Plans:*** N/A ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Increase of $0.250 million from FY22 to FY23 is due to the requirement for evaluations of next generation Commercial Off-The-Shelf (COTS) processors for the MCA Family of Systems.					
Accomplishments/Planned Programs Subtotals	52.279	60.117	77.960	0.000	77.960

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
• APN/0577: *Common Avionics Changes*	123.341	103.006	136.883	-	136.883	156.471	279.705	311.422	338.773	1,642.255	5,990.082

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 Collins Aerospace 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, HQMC AWS, NAVAIR, NAVSUP, 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,

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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). Avionics Architectures Team (AAT) will provide acquisition strategy guidance and direct support to weapon systems/platforms implementing open systems architectures to address open architecture requirements and to conform to public law. Common Mission Computing and Displays (CMCD) enables the development, test and fielding of common capabilities through the use of commercial off the shelf mission computing and displays products across multiple platforms through the Multi-Use Laboratory Environment. Digital Interoperability (DI)/Marine Air Ground Task Force (MAGTF) Agile Networking Gateway Link (MANGL) is approved as a Middle Tier Rapid Prototyping/Rapid Fielding Program. An Other Transaction Authority (OTA) contracting strategy is being used to fund the prototype and procure test and lab assets. The MANGL prototype will integrate upgraded system components previously fielded by other initiatives with a government developed software reconfigurable payload.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Navy		Date: April 2022
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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary Hardware Dev	Various	Various : Various	22.454	4.863	Jan 2021	4.902	Jan 2022	4.914	Jan 2023	-		4.914	Continuing	Continuing	Continuing
Primary Hardware Dev	WR	NAWCAD : Patuxent River, MD	1.219	0.499	Nov 2020	2.194	Nov 2021	1.819	Nov 2022	-		1.819	Continuing	Continuing	Continuing
Primary Hardware Dev DI/ MANGL	MIPR	NRL : Washington, DC	0.000	12.581	Jan 2021	11.512	Jan 2022	11.041	Jan 2023	-		11.041	0.000	35.134	35.134
Primary Hardware Dev DI/ MANGL	SS/FFP	Collins Aerospace : Cedar Rapids, IA	0.000	0.000		2.000	May 2022	7.650	May 2023	-		7.650	0.000	9.650	9.650
Primary Hardware Dev DI/ MANGL	SS/FFP	Kranze Technology Solutions : Prospect Heights, IL	0.000	2.366	May 2021	1.105	May 2022	0.000		-		0.000	0.000	3.471	3.471
Aircraft Integration DI/ MANGL	SS/FFP	Kranze Technology Solutions : Prospect Heights, IL	0.000	0.000		0.000		10.253	Dec 2022	-		10.253	0.000	10.253	10.253
Aircraft Integration TACCOM	SS/FFP	Collins Aerospace : Cedar Rapids, IA	37.186	3.229	Jan 2021	8.693	Jan 2022	10.341	Jan 2023	-		10.341	0.000	59.449	59.449
Aircraft Integration GPWS/ TAWS II	SS/CPIF	Lockheed Martin : Owego, NY	1.095	0.907	Nov 2020	0.409	Nov 2021	2.215	Nov 2022	-		2.215	0.000	4.626	4.626
Aircraft Integration	Various	Various : Various	0.076	0.200	Dec 2020	1.282	Dec 2021	0.000		-		0.000	0.000	1.558	1.558
Systems Engineering AAT	MIPR	DTIC : Fort Belvior, VA	21.840	0.000		0.000		0.000		-		0.000	0.000	21.840	21.840
Systems Engineering AAT	MIPR	CCDC/UARC : Huntsville, AL	0.000	1.540	Jan 2021	1.563	Jan 2022	1.700	Jan 2023	-		1.700	0.000	4.803	4.803
Systems Engineering TACCOM	WR	NAWCAD : Patuxent River, MD	8.024	2.314	Nov 2020	1.840	Nov 2021	2.029	Nov 2022	-		2.029	Continuing	Continuing	Continuing
Systems Engineering	Various	Various : Various	10.096	2.376	Dec 2020	2.849	Dec 2021	2.525	Dec 2022	-		2.525	Continuing	Continuing	Continuing
Systems Engineering	WR	NAWCAD : Patuxent River, MD	3.214	0.603	Nov 2020	1.410	Nov 2021	1.285	Nov 2022	-		1.285	Continuing	Continuing	Continuing
Prior Yr Product Dev no longer funded in FYDP	Various	Various : Various	4.565	0.000		0.000		0.000		-		0.000	0.000	4.565	4.565
		Subtotal	109.769	31.478		39.759		55.772		-		55.772	Continuing	Continuing	N/A

Remarks

Primary Hardware Dev NAWCAD decrease from FY22 to FY23 is due to the completion of V-22 TAWS II Requirements development support.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0605217N / *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 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Aircraft Integration TACCOM increase from FY22 to FY23 is required to fund Advanced Waveform Integration including NSA cryptographic mandates for Tactical Secure Voice 3.1.1 algorithm and Mobile User Objective System (MUOS) Advanced Crypto Capability (ACC) requirements. Aircraft Integration GPWS/TAWS II increase is due to H-1 Integration contract award. Overall Product Development increases/decreases from FY22 to FY23 are for funding received for Digital Interoperability (DI)/Marine Air Ground Task Force (MAGTF) Agile Networking Gateway Link (MANGL) for Software Reconfigurable Payload (SRP) redesign and development for changes in Tactical Targeting Network Technology (TTNT) Dual Power Amplifier (DPA) and Link 16 waveform integration due to new Federal Aviation Administration (FAA) Link 16 certification requirements and fielding.														

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Software Development TACCOM	SS/FFP	Collins Aerospace : Cedar Rapids, IA	0.745	0.000		1.394	Mar 2022	1.316	Mar 2023	-		1.316	0.000	3.455	3.455
Integrated Logistics Support	WR	NAWCAD : Patuxent River, MD	2.441	1.063	Nov 2020	1.263	Nov 2021	1.317	Nov 2022	-		1.317	Continuing	Continuing	Continuing
Support Development	Various	Various : Various	1.319	0.000		0.000		0.000		-		0.000	0.000	1.319	1.319
		Subtotal	4.505	1.063		2.657		2.633		-		2.633	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test and Evaluation	WR	NAWCAD : Patuxent River, MD	4.141	0.327	Nov 2020	2.797	Nov 2021	3.391	Nov 2022	-		3.391	Continuing	Continuing	Continuing
Developmental Test and Evaluation	Various	Various : Various	2.646	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
		Subtotal	6.787	0.327		2.797		3.391		-		3.391	Continuing	Continuing	N/A

Remarks

Developmental Test and Evaluation increase is for Digital Interoperability (DI)/Marine Air Ground Task Force (MAGTF) Agile Networking Gateway Link (MANGL) Software Reconfigurable Payload (SRP) redesign and development for changes in Tactical Targeting Network Technology (TTNT) Dual Power Amplifier (DPA) and Link 16 waveform integration due to new Federal Aviation Administration (FAA) Link 16 certification requirements and fielding.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Navy		Date: April 2022
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Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Contractor Engineering Support	Various	Various : Various	11.879	3.320	Jan 2021	3.659	Jan 2022	4.829	Jan 2023	-		4.829	Continuing	Continuing	Continuing
Contractor Engineering Support TACCOM	C/CPFF	Precise : Lexington Park, MD	6.393	1.379	Dec 2020	1.250	Dec 2021	1.275	Dec 2022	-		1.275	0.000	10.297	10.297
Contractor Engineering Support AAT	C/CPFF	Precise : Lexington Park, MD	7.482	2.890	Dec 2020	1.666	Dec 2021	2.904	Dec 2022	-		2.904	0.000	14.942	14.942
Contractor Management Support	Various	Various : Various	1.694	1.723	Dec 2020	0.679	Dec 2021	0.679	Dec 2022	-		0.679	Continuing	Continuing	Continuing
Contractor Management Support AAT	C/CPFF	Precise : Lexington Park, MD	1.691	0.626	Dec 2020	1.535	Dec 2021	0.600	Dec 2022	-		0.600	0.000	4.452	4.452
Government Engineering Support	WR	NUWC : Keyport, WA	0.613	0.000		0.049	Nov 2021	0.049	Nov 2022	-		0.049	0.000	0.711	0.711
Government Engineering Support	WR	NAWCAD : Patuxent River, MD	1.778	3.095	Nov 2020	1.145	Nov 2021	0.848	Nov 2022	-		0.848	Continuing	Continuing	Continuing
Government Engineering Support	MIPR	NRL : Washington, DC	0.000	0.750	Jan 2021	0.000		0.000		-		0.000	0.000	0.750	0.750
Government Engineering Support AAT	WR	NAWCAD : Patuxent River, MD	5.429	1.962	Nov 2020	1.952	Nov 2021	1.991	Nov 2022	-		1.991	Continuing	Continuing	Continuing
Program Management Support	WR	NAWCAD : Patuxent River, MD	10.549	3.645	Nov 2020	2.917	Nov 2021	2.937	Nov 2022	-		2.937	Continuing	Continuing	Continuing
Program Management Support	Various	Various : Various	0.083	0.001	Nov 2020	0.002	Nov 2021	0.002	Nov 2022	-		0.002	Continuing	Continuing	Continuing
Travel	WR	NAVAIR : Patuxent River, MD	0.124	0.020	Feb 2021	0.050	Feb 2022	0.050	Feb 2023	-		0.050	Continuing	Continuing	Continuing
		Subtotal	47.715	19.411		14.904		16.164		-		16.164	Continuing	Continuing	N/A

Remarks

Contractor Engineering Support Var/Var increase is for Digital Interoperability (DI)/Marine Air Ground Task Force (MAGTF) Agile Networking Gateway Link (MANGL) to adequately fund requirements development support.
Contractor Engineering Support AAT increase and Contractor Management Support AAT decrease is due to realignment of project support and reduction in manpower.
Government Engineering Support NAWCAD decrease is for reduction in manpower.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Navy			Date: April 2022
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	Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	168.776	52.279		60.117		77.960		-		77.960	Continuing	Continuing	N/A

Remarks

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

Exhibit R-4, RDT&E Schedule Profile: PB 2023 Navy		Date: April 2022
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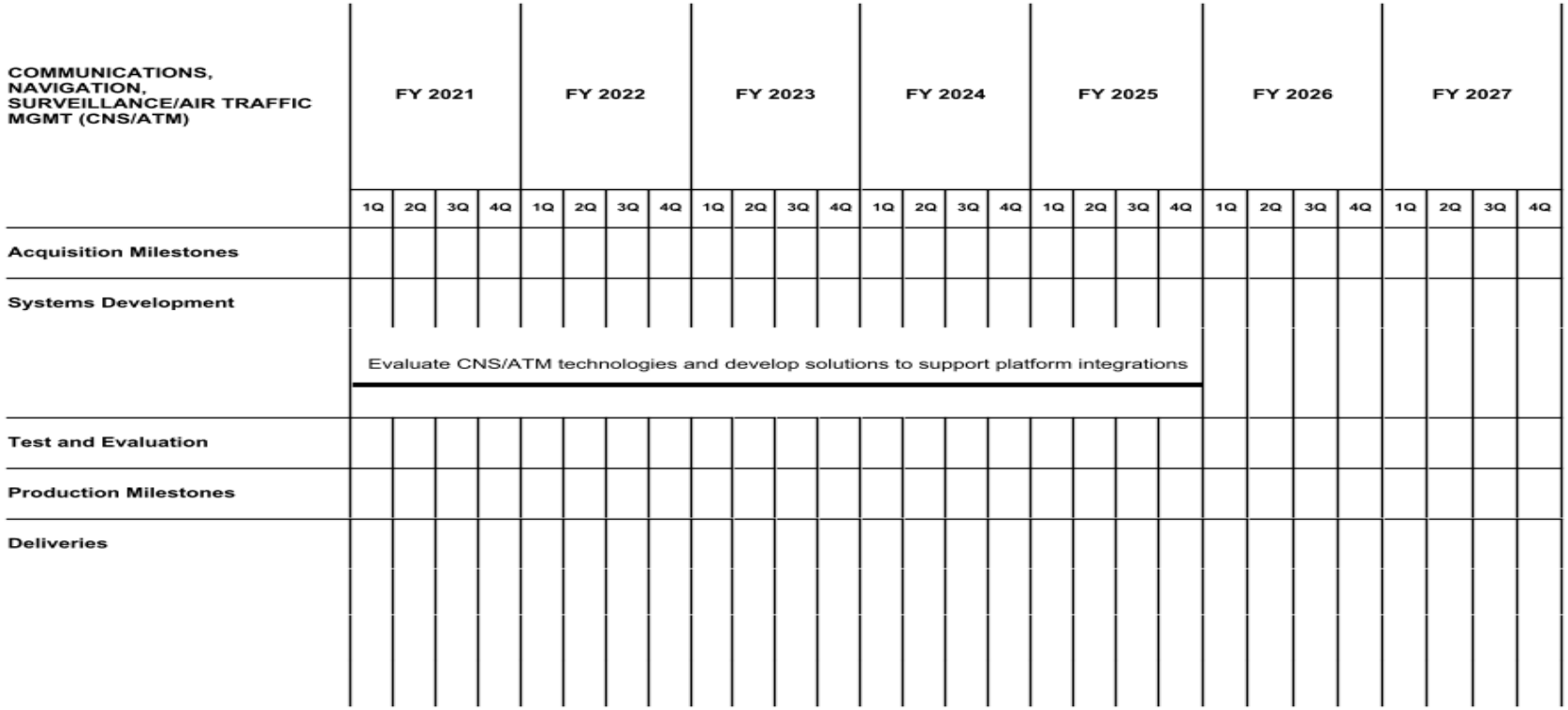

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0605217N / *Common Avionics*	**Project (Number/Name)** 0572 / *JT Service/NV Std Avionics CP/SB*

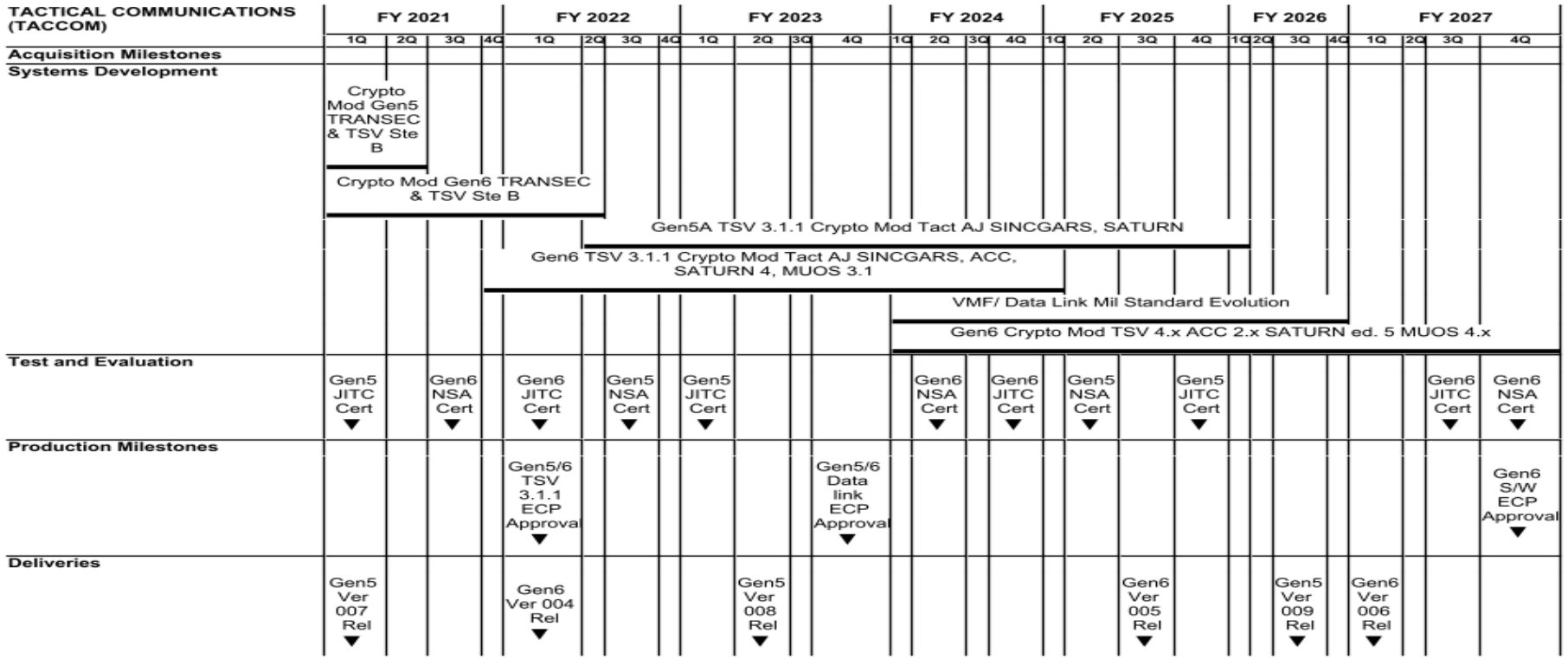

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Navy		Date: April 2022
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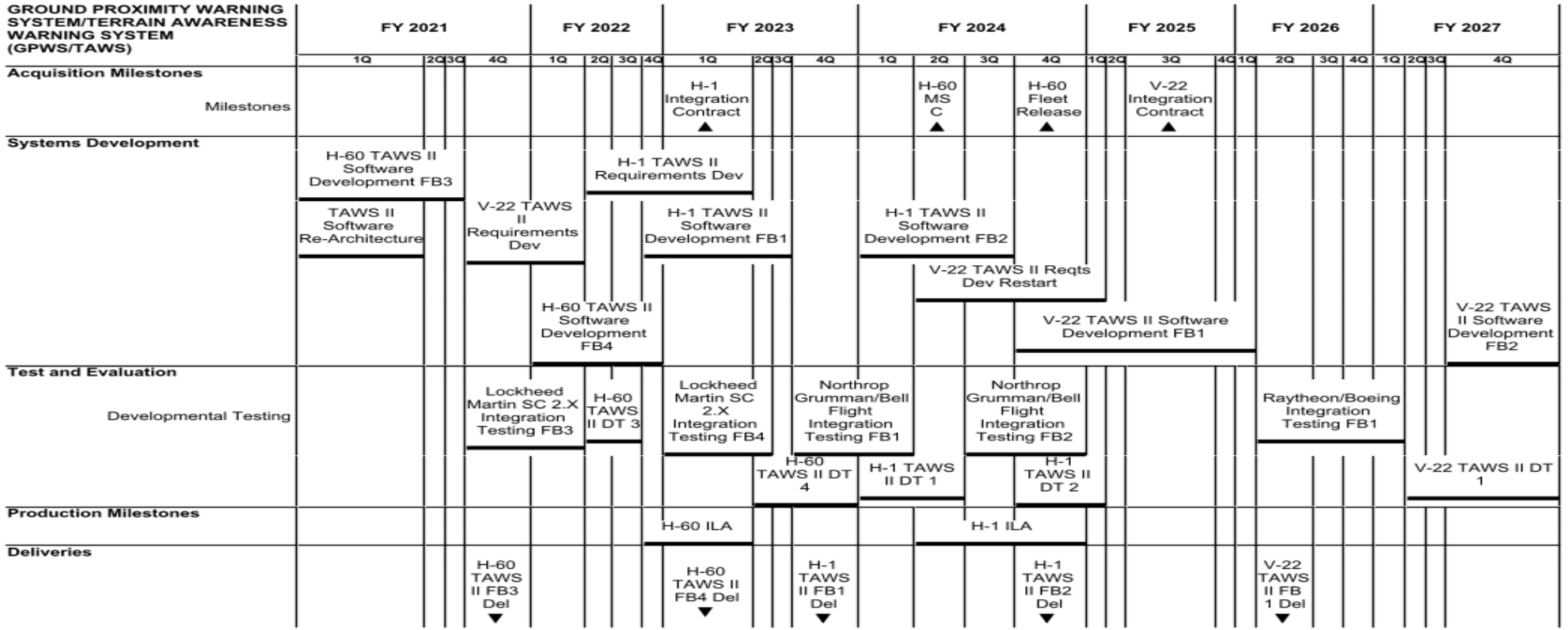

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0605217N / *Common Avionics*	**Project (Number/Name)** 0572 / *JT Service/NV Std Avionics CP/SB*

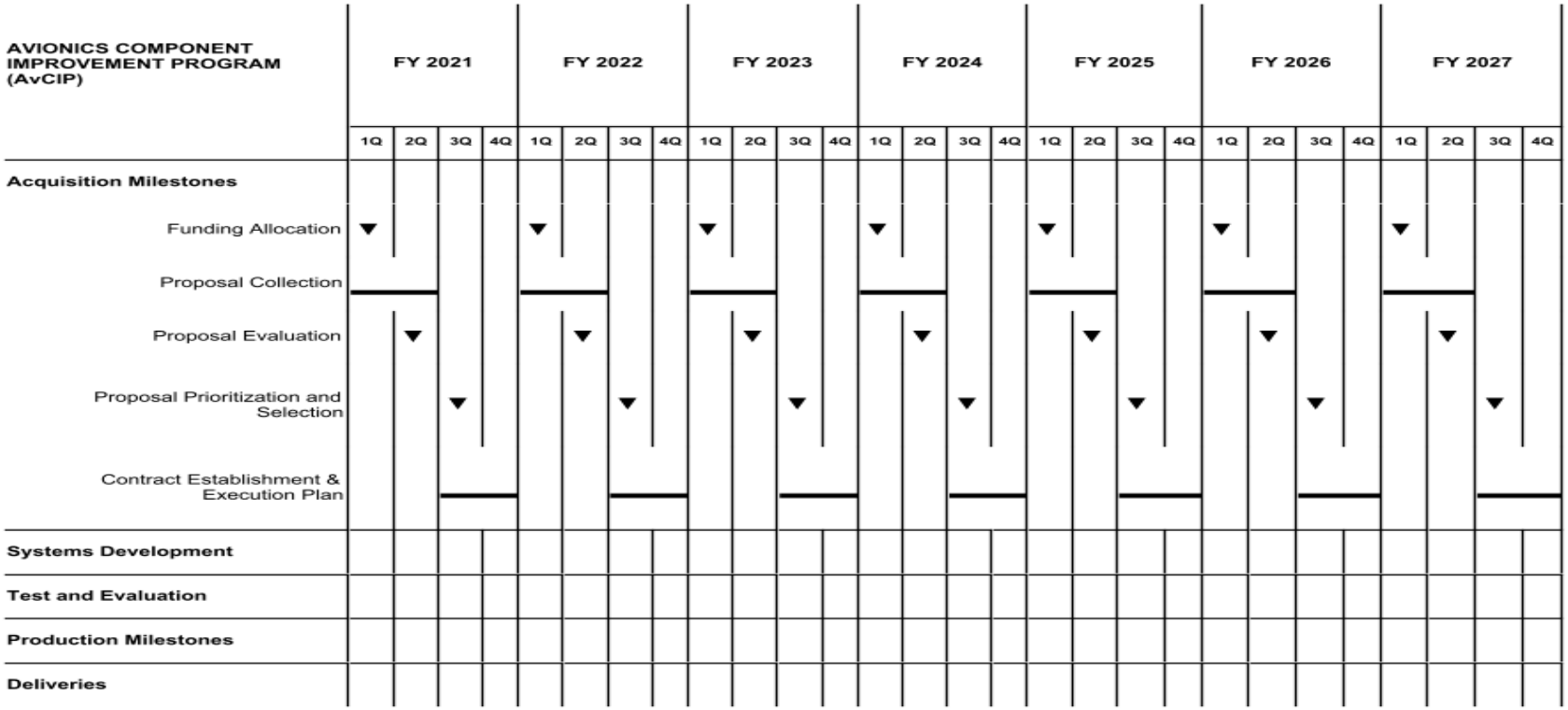

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Navy		Date: April 2022
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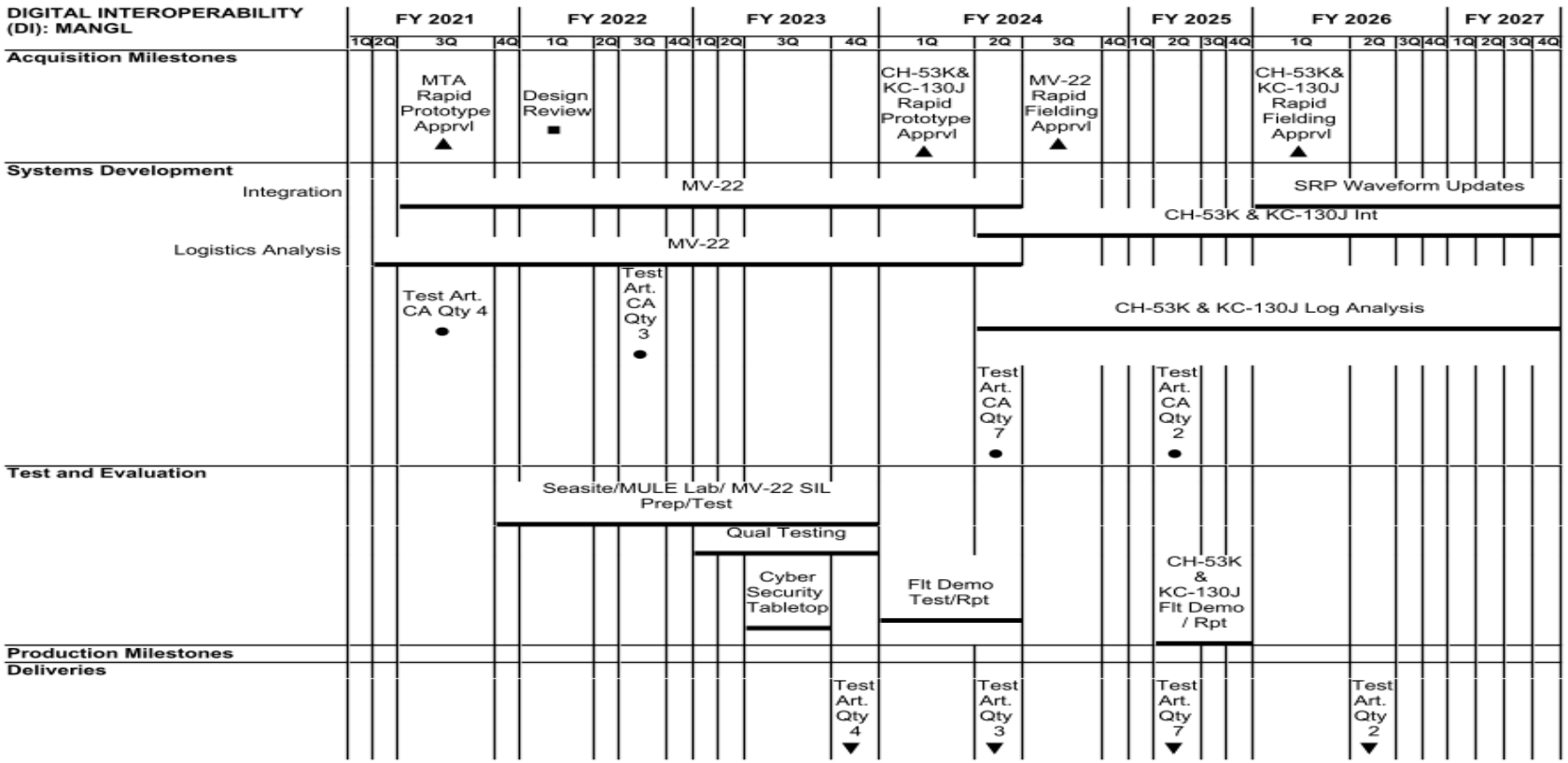

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Navy		Date: April 2022
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Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
COMMUNICATIONS, NAVIGATION, SURVEILLANCE/AIR TRAFFIC MGMT (CNS/ ATM)				
Systems Development: Evaluate CNS/ATM technologies and develop solutions to support platform integrations	1	2021	4	2025
TACTICAL COMMUNICATIONS (TACCOM)				
Systems Development: Crypto Modernization Gen5 TRANSEC & TSV Suite B	1	2021	2	2021
Systems Development: Crypto Modernication Gen6 TRANSEC & TSV Suite B	1	2021	2	2022
Systems Development: Gen5A TSV 3.1.1 Crypto Modernization Tactical Anti-Jam SINCGARS, SATURN	2	2022	1	2026
Systems Development: Gen6 TSV 3.1.1 Crypto Modernization Tactical Anti-Jam SINCGARS, ACC, SATURN 4, MUOS 3.1	4	2021	1	2025
Systems Development: VMF/ Data Link Mil Standard Evolution	1	2024	4	2026
Systems Development: Gen6 Crypto Mod TSV 4.x ACC 2.x SATURN ed. 5 MUOS 4.x	1	2024	4	2027
Test and Evaluation: Gen5 JITC Cert 4	1	2021	1	2021
Test and Evaluation: Gen6 NSA Cert 4	3	2021	3	2021
Test and Evaluation: Gen6 JITC Cert 5	1	2022	1	2022
Test and Evaluation: Gen5 NSA Cert 5	3	2022	3	2022
Test and Evaluation: Gen5 JITC Cert 6	1	2023	1	2023
Test and Evaluation: Gen6 NSA Cert 6	2	2024	2	2024
Test and Evaluation: Gen6 JITC Cert 7	4	2024	4	2024
Test and Evaluation: Gen5 NSA Cert 7	2	2025	2	2025
Test and Evaluation: Gen5 JITC Cert 8	4	2025	4	2025
Test and Evaluation: Gen6 JITC Cert 8	3	2027	3	2027
Test and Evaluation: Gen6 NSA Cert 7	4	2027	4	2027

Exhibit R-4A, RDT&E Schedule Details: PB 2023 Navy		Date: April 2022
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	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Production Milestones: Gen5/6 TSV 3.1.1 ECP Approval	1	2022	1	2022
Production Milestones: Gen5/6 Data link ECP Approval	4	2023	4	2023
Production Milestones: Gen6 S/W ECP Approval	4	2027	4	2027
Deliveries: Gen5 Ver 007 Release	1	2021	1	2021
Deliveries: Gen6 Ver 004 Release	1	2022	1	2022
Deliveries: Gen5 Ver 008 Release	2	2023	2	2023
Deliveries: Gen6 Ver 005 Release	3	2025	3	2025
Deliveries: Gen5 Ver 009 Release	3	2026	3	2026
Deliveries: Gen6 Ver 006 Release	1	2027	1	2027
GROUND PROXIMITY WARNING SYSTEM/TERRAIN AWARENESS WARNING SYSTEM (GPWS/TAWS)				
Acquisition Milestones: Milestones: H-1 Integration Contract	1	2023	1	2023
Acquisition Milestones: Milestones: V-22 Integration Contract	3	2025	3	2025
Acquisition Milestones: Milestones: H-60 MS C	2	2024	2	2024
Acquisition Milestones: Milestones: H-60 Fleet Release	4	2024	4	2024
Systems Development: H-60 TAWS II Software Development FB3	1	2021	3	2021
Systems Development: H-1 TAWS II Requirements Development	2	2022	1	2023
Systems Development: H-1 TAWS II Software Development FB1	4	2022	3	2023
Systems Development: H-1 TAWS II Software Development FB2	1	2024	3	2024
Systems Development: V-22 TAWS II Requirements Development	4	2021	1	2022
Systems Development: TAWS II Software Re-Architecture	1	2021	1	2021
Systems Development: V-22 TAWS II Requirements Development Restart	2	2024	1	2025
Systems Development: V-22 TAWS II Software Development FB1	4	2024	1	2026
Systems Development: V-22 TAWS II Software Development FB2	4	2027	4	2027
Systems Development: H-60 TAWS II Software Development FB4	1	2022	4	2022
Test and Evaluation: Developmental Testing: Lockheed Martin SC 2.X Integration Testing FB3	4	2021	1	2022

Exhibit R-4A, RDT&E Schedule Details: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0605217N / *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: Developmental Testing: Lockheed Martin SC 2.X Integration Testing FB4	1	2023	2	2023
Test and Evaluation: Developmental Testing: Northrop Grumman/Bell Flight Integration Testing FB1	4	2023	1	2024
Test and Evaluation: Developmental Testing: Northrop Grumman/Bell Flight Integration Testing FB2	3	2024	4	2024
Test and Evaluation: Developmental Testing: Raytheon/Boeing Integration Testing FB1	2	2026	1	2027
Test and Evaluation: Developmental Testing: H-60 TAWS II DT 3	2	2022	3	2022
Test and Evaluation: Developmental Testing: H-60 TAWS II DT 4	2	2023	4	2023
Test and Evaluation: Developmental Testing: H-1 TAWS II DT 1	1	2024	2	2024
Test and Evaluation: Developmental Testing: H-1 TAWS II DT 2	4	2024	1	2025
Test and Evaluation: Developmental Testing: V-22 TAWS II DT 1	2	2027	4	2027
Production Milestones: H-60 Integrated Logistics Assessment	4	2022	1	2023
Production Milestones: H-1 Integrated Logistics Assessment	2	2024	4	2024
Deliveries: H-60 TAWS II FB3 Delivery	4	2021	4	2021
Deliveries: H-60 TAWS II FB4 Delivery	1	2023	1	2023
Deliveries: H-1 TAWS II FB1 Delivery	4	2023	4	2023
Deliveries: H-1 TAWS II FB2 Delivery	4	2024	4	2024
Deliveries: V-22 TAWS II FB 1 Delivery	2	2026	2	2026
AVIONICS COMPONENT IMPROVEMENT PROGRAM (AvCIP)				
Acquisition Milestones: Funding Allocation: Funding Allocation2	1	2025	1	2025
Acquisition Milestones: Funding Allocation: Funding Allocation3	1	2026	1	2026
Acquisition Milestones: Funding Allocation: Funding Allocation4	1	2027	1	2027
Acquisition Milestones: Funding Allocation: Funding Allocation5	1	2021	1	2021
Acquisition Milestones: Funding Allocation: Funding Allocation6	1	2022	1	2022
Acquisition Milestones: Funding Allocation: Funding Allocation7	1	2023	1	2023
Acquisition Milestones: Funding Allocation: Funding Allocation1	1	2024	1	2024

Exhibit R-4A, RDT&E Schedule Details: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0605217N / *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: Proposal Collection: Proposal Collection1	1	2024	2	2024
Acquisition Milestones: Proposal Collection: Proposal Collection2	1	2025	2	2025
Acquisition Milestones: Proposal Collection: Proposal Collection3	1	2026	2	2026
Acquisition Milestones: Proposal Collection: Proposal Collection4	1	2027	2	2027
Acquisition Milestones: Proposal Collection: Proposal Collection5	1	2021	2	2021
Acquisition Milestones: Proposal Collection: Proposal Collection6	1	2022	2	2022
Acquisition Milestones: Proposal Collection: Proposal Collection7	1	2023	2	2023
Acquisition Milestones: Proposal Evaluation: Proposal Evaluation2	2	2025	2	2025
Acquisition Milestones: Proposal Evaluation: Proposal Evaluation3	2	2026	2	2026
Acquisition Milestones: Proposal Evaluation: Proposal Evaluation4	2	2027	2	2027
Acquisition Milestones: Proposal Evaluation: Proposal Evaluation5	2	2021	2	2021
Acquisition Milestones: Proposal Evaluation: Proposal Evaluation6	2	2022	2	2022
Acquisition Milestones: Proposal Evaluation: Proposal Evaluation7	2	2023	2	2023
Acquisition Milestones: Proposal Evaluation: Proposal Evaluation8	2	2024	2	2024
Acquisition Milestones: Proposal Prioritization and Selection: Proposal Prioritization and Selection2	3	2025	3	2025
Acquisition Milestones: Proposal Prioritization and Selection: Proposal Prioritization and Selection3	3	2026	3	2026
Acquisition Milestones: Proposal Prioritization and Selection: Proposal Prioritization and Selection4	3	2027	3	2027
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: Proposal Prioritization and Selection: Proposal Prioritization and Selection7	3	2023	3	2023
Acquisition Milestones: Proposal Prioritization and Selection: Proposal Prioritization and Selection8	3	2024	3	2024

Exhibit R-4A, RDT&E Schedule Details: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0605217N / *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	2025	4	2025
Acquisition Milestones: Contract Establishment & Execution Plan: Contract Establishment & Execution Plan3	3	2026	4	2026
Acquisition Milestones: Contract Establishment & Execution Plan: Contract Establishment & Execution Plan4	3	2027	4	2027
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
Acquisition Milestones: Contract Establishment & Execution Plan: Conract Establishment & Execution Plan7	3	2023	4	2023
Acquisition Milestones: Contract Establishment & Execution Plan: Conract Establishment & Execution Plan8	3	2024	4	2024
DIGITAL INTEROPERABILITY (DI): MANGL				
Acquisition Milestones: Design Review	1	2022	1	2022
Acquisition Milestones: Middle Tier Acquisition (MTA) Rapid Prototype Approval	3	2021	3	2021
Acquisition Milestones: CH-53K & KC-130J Rapid Prototype Approval	1	2024	1	2024
Acquisition Milestones: MV-22 Rapid Fielding Approval	3	2024	3	2024
Acquisition Milestones: CH-53K & KC-130J Rapid Fielding Approval	1	2026	1	2026
Systems Development: Integration: MV-22	3	2021	2	2024
Systems Development: Integration: SRP Waveform Updates	1	2026	4	2027
Systems Development: Integration: CH-53K & KC-130J Integration	2	2024	4	2027
Systems Development: Logistics Analysis: MV-22	2	2021	2	2024
Systems Development: Logistics Analysis: CH-53K & KC-130J Logistics Analysis	2	2024	4	2027
Systems Development: Logistics Analysis: Test Articles CA Qty 4	3	2021	3	2021
Systems Development: Logistics Analysis: Test Articles CA Qty 3	3	2022	3	2022
Systems Development: Logistics Analysis: Test Articles CA Qty 7	2	2024	2	2024

Exhibit R-4A, RDT&E Schedule Details: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0605217N / *Common Avionics*	**Project (Number/Name)** 0572 / *JT Service/NV Std Avionics CP/SB*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Systems Development: Logistics Analysis: Test Articles CA Qty 2	2	2025	2	2025
Test and Evaluation: Seasite/MULE Lab/ MV-22 SIL Prep/Test	4	2021	4	2023
Test and Evaluation: Qualification Testing	1	2023	4	2023
Test and Evaluation: Cyber Security Tabletop	3	2023	3	2023
Test and Evaluation: Flight Demonstration Test/Report	1	2024	2	2024
Test and Evaluation: CH-53K & KC-130J Flight Demo / Report	2	2025	4	2025
Deliveries: Test Articles Qty 4	4	2023	4	2023
Deliveries: Test Articles Qty 3	2	2024	2	2024
Deliveries: Test Articles Qty 7	2	2025	2	2025
Deliveries: Test Articles Qty 2	2	2026	2	2026