Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy												Date: March 2023
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 5: *System Development & Demonstration (SDD)*					R-1 Program Element (Number/Name) PE 0604280N *I JT TACTICAL RADIO SYSTEM (JTRS)*							
COST ($ in Millions)	**Prior Years**	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Cost To Complete**	**Total Cost**
Total Program Element	449.041	225.867	334.787	451.397	-	451.397	385.531	249.408	194.893	163.462	Continuing	Continuing
0725: *Communication Automation*	10.286	8.126	14.012	29.643	-	29.643	16.839	12.419	4.272	4.357	Continuing	Continuing
0728: *Navy Multiband Terminal (NMT)*	0.000	24.938	30.978	47.629	-	47.629	21.519	7.574	7.865	8.024	Continuing	Continuing
0729: *Mobile Advanced Extremely High Frequency (AEHF) Terminal (MAT)*	0.000	26.739	75.986	107.680	-	107.680	62.728	1.040	1.047	1.069	Continuing	Continuing
0742: *Sub Integrated Ant System*	30.942	15.543	27.991	17.473	-	17.473	13.282	13.236	12.943	13.166	Continuing	Continuing
0921: *NAVSTAR GPS Equipment*	92.564	28.011	36.380	37.581	-	37.581	52.490	22.387	21.243	21.671	Continuing	Continuing
1411: *Sub Tact Comm System*	26.722	13.259	14.274	17.043	-	17.043	14.680	14.867	15.085	15.391	Continuing	Continuing
2126: *ATDLS Integration*	39.342	21.715	32.039	31.874	-	31.874	28.597	23.730	23.916	24.403	Continuing	Continuing
3020: *MIDS/JTRS*	118.527	63.855	82.429	149.068	-	149.068	159.977	139.780	92.775	60.416	Continuing	Continuing
3078: *Digital Modular Radio*	53.890	2.460	6.347	7.115	-	7.115	6.868	6.820	6.948	7.088	Continuing	Continuing
3341: *Network Tactical Common Data Link*	71.274	19.162	6.037	3.017	-	3.017	5.489	4.444	5.636	4.650	Continuing	Continuing
4011: *Naval Coastal Warfare Surv and C4I Sys*	5.494	2.059	3.314	3.274	-	3.274	3.062	3.111	3.163	3.227	Continuing	Continuing
9999: *Congressional Adds*	0.000	0.000	5.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	5.000

Program MDAP/MAIS Code:
Project MDAP/MAIS Code(s): 290, 554

A. Mission Description and Budget Item Justification

Programs will implement digital system-of-systems engineering by using tools such as Model Based System Engineering (MBSE) and Digital Twins to create adaptable digital models to optimize system engineering from design, development and testing to operations and sustainment. Programs will use Development, Security and Operations (DevSecOps) processes for continuous development, integration, testing and deployment, along with common platform services such as Agile Core Services (ACS), for faster fielding of capability.

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(0725) The details of Program Element 0604280N, Project 0725 for BFTN/BRSE are classified SECRET//NOFORN and are submitted annually to Congress in the classified budget justification books.

(0728) The details of Program Element 0604280N, Project 0728 for NMT are classified SECRET//NOFORN and are submitted to Congress in the classified budget justification books.

(0728) Navy Global Broadcast System (GBS) is a member of the larger Joint C4I program, providing high speed (up to 45 Mbps per transponder)/large volume information/data delivery to forces afloat, ashore, and Naval Special Warfare Command. Leveraging the NMT antenna, GBS provides a one-way broadcast to Naval maritime forces across the spectrum of mission areas, to include land, air and naval warfare, special operations, strategic nuclear operations, strategic defense, theater missile defense, and space operations and intelligence in support of RC3. GBS Transmission Security (TRANSEC) is an operational requirement from the Joint GBS ORD and provides robust datalink protection of both uplink and downlink for the GBS broadcast. GBS is evaluating PTW solutions to meet the TRANSEC mandate. The Air Force & Army Anti-Jam Modem (A3M) and the WAMS are PTW solutions that are under consideration. Navy GBS will require extensive development activities for the new PTW modem solution and must conduct a FOT&E with Joint Services. Overall program efforts include technology insertion studies required to support satellite communications.

(0728) GBS FY24 will support GBS Transmission Security (TRANSEC) development to provide robust datalink protection of both uplink and downlink for the GBS broadcast.

(0729) Satellite Communications: The details of Program Element 0604280N, Project 0729 are classified SECRET//NOFORN and are submitted to Congress in the classified budget justification books.

(0742) Submarine Integrated Antenna System: The details of Program Element 0604280N, Project 0742 are classified SECRET//NOFORN and are submitted to Congress in the classified budget justification books.

(0921) Navigation Satellite Timing & Ranging (NAVSTAR) Global Positioning System (GPS) project (0921) encompasses the Navy's efforts to pace the growing threat to GPS Navigation through the fielding of new GPS receivers, Anti-Jam (AJ) Antennas, and Assured-Positioning Navigation and Timing (A-PNT) technologies across all Navy platform types. NAVSTAR GPS is a group of A-PNT systems that provides authorized users with secure, worldwide, all weather, three dimensional position, velocity, and precise time data. NAVSTAR GPS provides A-PNT capability to Command, Control, Communications, Computer, Intelligence, Surveillance and Reconnaissance (C4ISR) and combat systems in standalone and networked architectures throughout air and maritime domains. This project is comprised of four distinct efforts: Sea Navigation Warfare (NAVWAR), GPS-based Positioning, Navigation, and Timing (PNT) Service (GPNTS), Air Navigation Warfare (NAVWAR) and GPS Modernization. Sea NAVWAR provides AJ antennas to surface and subsurface platforms; GPNTS provides GPS receivers and A-PNT technology to surface platforms; Air NAVWAR provides AJ antennas, and GPS Modernization provides GPS receivers to air platforms. Research, Development, Testing and Evaluation (RDT&E) funds are used to perform all the non-recurring GPS Surface Ship, Submarine and Aircraft Development, Integration, and Testing efforts in support of NAVSTAR GPS.

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy	Date: March 2023
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FY2024 request will fund the following GPS Surface Ship, Submarine and Aircraft Development, Integration and Test efforts in support of NAVSTAR GPS: continue investigation of enhanced Anti-Jam (AJ) capabilities for integration into existing Sea NAVWAR antenna systems, continue efforts to develop and test a GPNTS system capable of hosting the Automated Celestial Navigation Systems (ACNS) below deck hardware, complete ground and flight testing of the Multi-Platform Anti-Jam Global Positioning System Navigation H-Antenna Integration (MAGNA-I) on the AH-1Z/UH-1Y helicopters, and conduct Military Code (M-Code) Prime Vendor Integrations (PVI) on the following three (3) platforms: FA-18E/F, EA-18G, and E-2D.

(1411) Submarine Tactical Communications System: The details of Program Element 0604280N, Project 1411 are classified SECRET//NOFORN and are submitted to Congress in the classified budget justification books.

(2126) Tactical Data Link (TDL) systems includes the Advanced Tactical Data Link Systems (ATDLS) integration programs, specifically Link 16 Network, Command and Control Processor (C2P) and Link Monitoring and Management Tool (LMMT).

FY24 JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under operational systems development because it encompasses engineering and manufacturing development for upgrade of existing operational systems.

Link 16 Network Program provides shipboard and shore integrated Link 16 capability through the fielding of Joint Tactical Information Distribution System (JTIDS), Multifunctional Information Distribution System (MIDS) on Ships (MOS) and MOS Modernization (MOS Mod) systems, including transmit and receive antennas. JTIDS utilizes the JTIDS terminal, MOS utilizes either the MIDS-Low Volume Terminal (LVT) or MIDS Joint Tactical Radio System (JTRS) terminal, and MOS Mod utilizes the MIDS JTRS terminals. All Link 16 systems are interfaced to Command and Control Processor (C2P). The JTIDS terminal is no longer in production, but is undergoing JTIDS Product Improvement (JPI) to maintain interoperability and security with MIDS-LVT and MIDS JTRS. As part of the product improvement, all shipboard Link 16 terminals are required to have Dynamic Network Management (DNM), Crypto Modernization (CM) and Frequency Remapping (FR). MIDS Program Office (MPO) is developing additional improvements to the MIDS JTRS terminals. The MIDS-LVT will have Link 16 Enhanced Throughput (ET) and the MIDS JTRS will have the added capability of four networks via Concurrent Multi-Netting (CMN) with Current Contention Receive (CCR) and Tactical Targeting Networking Technology (TTNT).

Command and Control Processor (C2P): The two Research Development Test & Evaluation (RDT&E) initiatives are 1) C2P Technology Refresh (TR) cyber security update and 2) C2P Modernization which now includes Link 22 integration. C2P TR cyber security update is a new initiative driven by recently discovered cyber security risk to the C2P system in
support of the Ballistic Missile Defense (BMD) mission. This update is planned to support acceleration on all AEGIS BMD ships. C2P Modernization funds the transition of the legacy Compiler Monitor System (CMS-2Y) software code to a modern software language. This is required to sustain the system software, to adequately address growing cyber security and
operational availability challenges and to enable more affordable transition to new hardware processing components as a result of commercial off the shelf processor obsolescence.

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Link Monitoring and Management Tool (LMMT) is a system delivered on commercial off-the-shelf hardware (HW) providing gateway functions for multiple Tactical Data Link(TDL) interface, routing and display of TDL data to include Link 16, Joint Range Extension (JRE) and Link 22. LMMT is also capable of performing TDL network monitoring and
management, data forwarding between the TDLs and providing tactical data to the Integrated Air and Missile Defense (IAMD), Ballistic Missile Defense (BMD) network, and Global Command and Control System (GCCS) for establishing the common operational picture. LMMT requirements will be incrementally developed and delivered in capability drops via the
Joint Capabilities Integration Development System (JCIDS) IT Box approach.

(3020)The Multifunctional Information Distribution System (MIDS) program office is the Performing Activity for the Navy (Lead Service for Department of Defense (DOD)), Link 16 capability and consists of two (2) product lines, MIDS Low Volume Terminal (LVT) (legacy hardware defined radio) and MIDS Joint Tactical Radio System (JTRS) (software defined radio). MIDS-LVT effort is a cooperative development program between France, Germany, Italy, Spain, and the United States with United States joint service participation (Navy, Army, Air Force), and has provided over 11,000 terminals to 48 Nations providing interoperability with North Atlantic Treaty Organization (NATO) and coalition partners. The Department of Defense (DoD) established the program to design, develop, and deliver low volume, lightweight tactical information system terminals for U.S. and allied fighter aircraft, bombers, helicopters, ships, and ground sites. MIDS-LVT significantly increases force effectiveness and minimizes hostile actions and friend-on-friend engagements. MIDS-LVT Block Upgrade 2 was executed as an ECP and provides the critical upgrades to the MIDS-LVT Terminal to enable U.S., Coalition and International partners' ability to meet the National Security Agency (NSA) mandated timelines for Cryptographic Modernization (CM) and the National Telecommunications and Information Agency (NTIA) and Federal Aviation Agency (FAA) mandated timelines for Frequency Remapping (FR).

MIDS JTRS, designed as a Pre-Planned Product Improvement (P3I) and executed as an Engineering Change Proposal (ECP) to the production MIDS-LVT configuration, and is fully compatible with MIDS-LVT. The MIDS JTRS Core Terminal achieved Full Production and Fielding (FP&F) in March 2012. It facilitated the JTRS incremental approach for fielding advanced JTRS transformational networking capability and transformed the MIDS-LVT into a 4-channel, Software Communications Architecture (SCA) compliant, Joint Tactical Radio. A form-fit-function replacement to MIDS-LVT, MIDS JTRS also adds three programmable 2 Megahertz (MHz) to 2 Gigahertz (GHz) channels capable of hosting the JTRS legacy and networking waveforms. In addition to Link 16, Tactical Air Navigation (TACAN), and voice functionality found in MIDS-LVT, MIDS JTRS has four channels and adds capabilities such as Link 16 Enhanced Throughput (ET), Link 16 FR, software programmability, CM, and Four Net Concurrent Multi-Netting with Concurrent Contention Receive (CMN-4).

MIDS JTRS Tactical Targeting Network Technology (TTNT), is a block upgrade to the MIDS JTRS CMN-4 Terminal providing an Internet Protocol-based networking capability on tactical aircraft. TTNT is a low latency, high throughput waveform that has the capability to support data exchange between fast-moving tactical aircraft, weapons, and unmanned aircraft, in addition to air, land, and sea-based command and control nodes, in a variety of air-to-air and air-to-ground missions including time sensitive targeting, air warfare, close air support, non-traditional ISR, and anti-surface warfare. TTNT and MIDS JTRS CMN-4 are critical Tactical Data Link capabilities and directly supports Naval Integrated Fire Control (NIFC) capability requirements. These capabilities provide Joint Airborne Network-Tactical Edge functionality to run advanced mission applications in a cross-platform/cross-domain tactical network enterprise.

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The FY2024 Budget completes the first software release (Block Cycle 1) for the MIDS Modernization Software and Firmware development and enters EMC Testing. It continues the MIDS JTRS machine to machine capability enhancements. The FY 2024 budget also supports the lead service core waveform development requirements for developing a reference implementation platform for prototyping and conducting frequency testing for the Link 16 and TTNT waveforms.

The FY2024 Budget funds the development of new Advanced Tactical Datalinks Waveform for further interoperability and adding classified capabilities. The FY 2024 Budget continues to fund critical warfighter improvements to the TTNT Terminal Software and Waveform in order to out pace the threat with adding classified capabilities. It completes the development of the TTNT Consolidated Automated Support System (CASS) Test Program Sets (TPS).

(3078) Digital Modular Radio (DMR) with Integrated Waveform (IW) and Mobile User Objective System (MUOS) capable hardware is the Navy's technical solution for the IW/MUOS requirement. The DMR AN/USC-61(C), is the first software defined radio to become a communications system standard for the U.S. Military. The compact, multi-channel DMR provides 3G, Wideband Code Division Multiple Access (WCDMA) technology, for high speed/capacity voice and data satellite communications. DMR radios currently operate aboard U.S. Navy surface and subsurface vessels, fixed-sites and other Department of Defense (DoD) communication platforms using frequencies ranging from 2 MHz to 2 GHz. Certified to pass secure voice and data at Multiple Independent Levels of Security (MILS) over High Frequency (HF), Very High Frequency (VHF), Ultra High Frequency (UHF), and Satellite Communications (SATCOM) channels, the DMR system was developed to the U.S. Navy's specifications and meets all the stringent environmental, Electromagnetic Interference (EMI) and performance requirements for use in the U.S. Fleet. This system is formally specified by both Fleet Commanders as a threshold capability, for global maritime command control and communications in a Distributed Maritime Environment, to execute current warfighting plans and is required for National Command and Control capability. This program is for continued development/integration of the IW and MUOS waveforms into the DMR in accordance with Military Standards 188-181,2,3. Additionally, the enhancements of High Frequency Distribution Amplifier Group (HFDAG), HF Automated Link Establishment (ALE) and Second-Generation Anti-Jam Tactical UHF Radio for NATO (SATURN) will also be developed/integrated into the DMR. HFDAG is a follow-on HF solution to fulfill transmit and receive HF communication capability with various modes of operation, such as ALE, for Navy platforms. HFDAG will utilize the existing DMR as the exciter/receiver. Generation 3 (GEN 3) HF ALE/HF wideband provides Navy users with improved HF communications, increased transmission rates from radio to radio, and serves as a supplement to SATCOM when SATCOM networks are overloaded or unavailable. SATURN is the follow-on HAVEQUICK II anti-jamming solution in accordance with NATO Standardization Agreement 4372 (retirement date for HAVEQUICK II is no later than 1OCT24). SATURN capability will counter adversaries' jamming efforts and ensure Navy's Assured Command and Control UHF communications operational end-to-end capability as well as enhance interoperability within/between DMR users and with Allied/Coalition partners. IW uses a Time Division Multiple Access (TDMA) communication system in an attempt to improve satellite bandwidth utilization over legacy SATCOM waveforms. This enables demand assigned services on UHF SATCOM networks to support new applications that require better performance and higher channel throughput. The MUOS waveform will enable MUOS satellites to provide worldwide communication satellite coverage for DoD requirements. MUOS will provide functionality comparable to commercial mobile phone systems.

FY24 will continue integration of the MUOS waveform 3.2 as well as development of the SATURN waveform from the currently used HAVEQUICK II (HQII) waveform; and complete development of Crypto Mod SINCGARS 3.x Phase 2.

(3341) Network Tactical Common Data Link (NTCDL) provides the ability to transmit/receive real-time Intelligence, Surveillance, and Reconnaissance (ISR) data simultaneously from multiple sources (surface, airborne, sub-surface, man-portable), and exchange command and control information (voice, data, imagery, and Full Motion Video) across dissimilar joint, service, coalition, and civil networks. NTCDL provides warfighters with the capability to support multiple, simultaneous, networked

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operations with currently fielded Common Data Link (CDL)-equipped air platforms (e.g. MH-60R), in addition to next generation manned and unmanned platforms (e.g., P-8, Triton, MQ-25 (Stingray), small tactical unmanned aircraft systems (STUAS) and Fire Scout). NTCDL is an incremental capability (surface, airborne, sub-surface, man-portable) providing modular, scalable, multiple-link networked communications. NTCDL benefits the fleet by providing a horizon extension for line-of-sight sensor systems for use in time-critical strike missions and supports tasking, collection, processing, exploitation, and dissemination (TCPED) via its ISR networking capability. NTCDL supports Resilient Command and Control (RC2) through its relay capability, and supports TCPED through its ISR networking capability.

FY 2024 request is for NTCDL to conduct Initial Operational Test & Evaluation and continue to mature the Initial Capability to support high speed waveforms, higher speed data rates (up to 45 Mpbs), and platform communication equipment.

(4011) The Navy Expeditionary C4I project supports the Navy Expeditionary Combat Command (NECC) mission to detect, deter or interdict potential threats to DoN assets using agile, modular and scalable technology. NECC units have a number of current and future Command, Control, Communications, Computers & Intelligence (C4I) technological requirements for Tactical/Command Operations Center, tactical vehicles, combatant craft, and dismounted personnel. NECC operations require units to maintain effective command and control, develop and display a common tactical picture, and share intelligence and current operational information with higher headquarters, subordinate units, joint forces and coalition allies. Small, Medium, and Large Scale Communication Systems (LSCS) are the C4I hub for the NECC; Navy Enterprise Tactical Command and Control (NETC2) is the converged LSCS baseline. Future C4I research and development include enhanced information transport, network cyber security posture, assured communications in denied environments along with agility and mobility. Funding is required for testing and evaluation of cyber security issues associated with obsolescence of network items and if not addressed will impact the ability of the Program Office to maintain system accreditation under Risk Management Framework (RMF) revoking multiple LSCS assets authority to connectivity on the Department of Defense Information Network (DoDIN). Efforts are in alignment with NECC's strategic Expeditionary Warfare Improvement Program (EXWIP) Integrated Priority Capability List (IPCL) priorities and maintain alignment with greater DoD initiatives, such as Joint Information Environment (JIE), Mission Partner Environment (MPE) in order to maintain interoperability and drive down DoN enterprise costs. FY24 funding supports investigation of cloud and containerization technologies, as well as development of Tier 1 capabilities to support multi-cloud environments.

(C887) FY23 Congressional Addition For Integrated Photonics: Provides funding for the development, test and evaluation of enhanced capabilities for Satellite Communications by furthering Science & Technology (S&T) research and transition activities associated with resilient communications capabilities.

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B. Program Change Summary ($ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	234.434	329.787	324.172	-	324.172
Current President's Budget	225.867	334.787	451.397	-	451.397
Total Adjustments	-8.567	5.000	127.225	-	127.225
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	5.000			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-0.977	0.000			
• SBIR/STTR Transfer	-7.541	0.000			
• Program Adjustments	0.000	0.000	118.511	-	118.511
• Rate/Misc Adjustments	-0.049	0.000	8.714	-	8.714

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2022	FY 2023
Project: 9999: *Congressional Adds*		
Congressional Add: *Integrated photonic systems*	0.000	5.000
Congressional Add Subtotals for Project: 9999	0.000	5.000
Congressional Add Totals for all Projects	0.000	5.000

Change Summary Explanation

(0728) Navy Multiband Terminal (NMT) has an overall increase of $16.651M from FY23 to FY24 to support Wideband Anti-Jam Modem System (WAMS) development, integration, test, and certification efforts. This provides Resilient Command, Control, and Communications (RC3) and Distributed Maritime Operations (DMO) capability. Details provided in the Classified justification books. Navy Global Broadcast System (GBS) decrease of $1.514M from FY23 to FY24 due to the focus on integration and operational testing in support of Transmission Security (TRANSEC).

(0729) Satellite Communications has an overall increase of $31.694M from FY23 to FY24 to support Big Sky 54-month development schedule.

(0921) The FY 2024 funding request was increased by $1.201M to support the Global Positioning System (GPS) Modernization Miniaturized Airborne GPS Receiver 2000-Modernization (MAGR2K-M) Developmental Test (DT)/Operational Test (OT) on the following air platforms: CMV-22B and MV-22B.

(2126) The FY2023 to FY2024 funding decreased by $0.165M included a $2.08M decrease in the Link 16 Program as the program down-selects to a single vendor performing A(v)6 integration into a MOS Mod cabinet; a $2.027M increase in the C2P program as the commencement of the C2P Pre-Planned Product

Improvement Program (P3I) to incorporated additional capability to the C2P Mod SW baseline begins; and a $.112M decrease in the LMMT program as the program completes Capability Drop (CD) 3 development and begins development of CD4.

(3020) The FY2023 to FY2024 increase of $66.6M is due to the funding of the development of Advanced Tactical Datalinks (ATDL) Waveform (and variants thereof).

(3078) The FY2023 to FY2024 funding increase by $0.768M will continue the development of the Second generation Anti-jam Tactical UHF Radio for North Atlantic Treaty Organization (NATO) (SATURN) waveform.

(3341) The FY24 funding decreased by $3.020M due to completion of DT-B2 and End-to-End interoperability Testing.

(4011) The FY2023 to FY2024 decrease of $0.04 million is a result of the reduction of onsite surveys in preparation of Operation Exercises.

(C887) FY23 Congressional Add provides for the development, test and evaluation of enhanced capabilities for Satellite Communications by furthering Science & Technology (S&T) research and transition activities associated with resilient communications capabilities.

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COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
0725: *Communication Automation*	10.286	8.126	14.012	29.643	-	29.643	16.839	12.419	4.272	4.357	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The details of Program Element 0604280N Project 0725 are classified SECRET//NOFORN and are submitted annually to Congress in the classified budget justification books.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Battle Force Tactical Network (BFTN)	8.126	14.012	29.643	0.000	29.643
Articles:	-	-	-	-	-
FY 2023 Plans: The details of Program Element 0604280N Project 0725 are classified SECRET//NOFORN and are submitted annually to Congress in the classified budget justification books.					
FY 2024 Base Plans: The details of Program Element 0604280N Project 0725 are classified SECRET//NOFORN and are submitted annually to Congress in the classified budget justification books.					
FY 2024 OCO Plans: N/A					
FY 2023 to FY 2024 Increase/Decrease Statement: The details of Program Element 0604280N Project 0725 are classified SECRET//NOFORN and are submitted annually to Congress in the classified budget justification books.					
Accomplishments/Planned Programs Subtotals	8.126	14.012	29.643	0.000	29.643

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• OPN/3057: *Battle Force Tactical Network (BFTN)*	27.816	34.112	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
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C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• OPN/2437: *Battle Force Tactical Network (BFTN)*	0.000	0.000	74.180	-	74.180	105.833	106.813	105.958	107.414	0.000	500.198

Remarks

OPN LI 3057 is a shared line; funding identified above is for BFTN efforts.
Beginning in FY24, BFTN's OPN funding moved from BLI 3057 to BLI 2437. This budget is classified SECRET//NOFORN and is submitted annually to Congress in the classified budget justification books.

D. Acquisition Strategy

The details of Program Element 0604280N Project 0725 are classified SECRET//NOFORN and are submitted annually to Congress in the classified budget justification books.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Classified	Various	Not Specified : Not Specified	9.552	7.676	Oct 2021	12.197	Oct 2022	27.498	Oct 2023	-		27.498	Continuing	Continuing	Continuing
		Subtotal	9.552	7.676		12.197		27.498		-		27.498	Continuing	Continuing	N/A

Remarks

The details of Program Element 0604280N Project 0725 are classified SECRET//NOFORN and are submitted annually to Congress in the classified budget justification books.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Classified	Various	Not Specified : Not Specified	0.734	0.450	Nov 2021	0.450	Nov 2022	0.000		-		0.000	0.000	1.634	-
		Subtotal	0.734	0.450		0.450		0.000		-		0.000	0.000	1.634	N/A

Remarks

The details of Program Element 0604280N Project 0725 are classified SECRET//NOFORN and are submitted annually to Congress in the classified budget justification books.

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation (DT&E)	Various	Not Specified : Not Specified	0.000	0.000	Oct 2021	1.365	Oct 2022	1.485	Oct 2023	-		1.485	0.000	2.850	-
Operational Test & Evaluation (OT&E)	Various	Not Specified : Not Specified	0.000	0.000		0.000		0.660	Oct 2023	-		0.660	0.000	0.660	-
		Subtotal	0.000	0.000		1.365		2.145		-		2.145	0.000	3.510	N/A

Remarks

The details of Program Element 0604280N Project 0725 are classified SECRET//NOFORN and are submitted annually to Congress in the classified budget justification books.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604280N / *JT TACTICAL RADIO SYSTEM (JTRS)*	Project (Number/Name) 0725 / *Communication Automation*	

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	10.286	8.126		14.012		29.643		-		29.643	Continuing	Continuing	N/A

Remarks

The details of Program Element 0604280N Project 0725 are classified SECRET//NOFORN and are submitted annually to Congress in the classified budget justification books.

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604280N / *JT TACTICAL RADIO SYSTEM (JTRS)*	**Project (Number/Name)** 0725 / *Communication Automation*

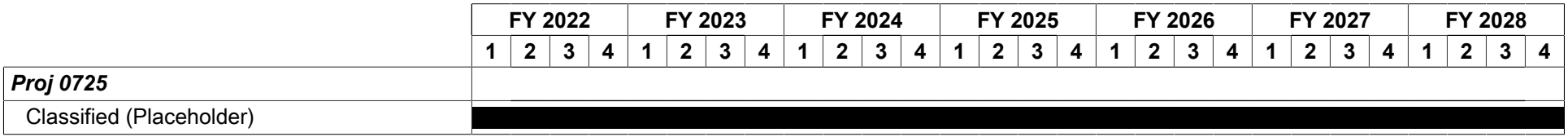


Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604280N / *JT TACTICAL RADIO SYSTEM (JTRS)*	**Project (Number/Name)** 0725 / *Communication Automation*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 0725				
Classified (Placeholder)	1	2022	4	2028

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604280N / *JT TACTICAL RADIO SYSTEM (JTRS)*	Project (Number/Name) 0728 / *Navy Multiband Terminal (NMT)*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
0728: *Navy Multiband Terminal (NMT)*	0.000	24.938	30.978	47.629	-	47.629	21.519	7.574	7.865	8.024	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Project MDAP/MAIS Code: 290

A. Mission Description and Budget Item Justification

The details of Program Element 0604280N, Project 0728 for NMT are classified SECRET//NOFORN and are submitted to Congress in the classified budget justification books.

Navy Global Broadcast System (GBS) is a member of the larger Joint Command, Control, Communications, Computers, and Intelligence (C4I)program, providing high speed (up to 45 Mbps per transponder)/large volume information/data delivery to forces afloat, ashore, and Naval Special Warfare Command. Leveraging the NMT antenna, GBS provides a one-way broadcast to Naval maritime forces across the spectrum of mission areas, to include land, air and naval warfare, special operations, strategic nuclear operations, strategic defense, theater missile defense, and space operations and intelligence in support of RC3. GBS Transmission Security (TRANSEC) is an operational requirement from the Joint GBS ORD and provides robust datalink protection of both uplink and downlink for the GBS broadcast. GBS is evaluating Protected Tactical Waveform (PTW) solutions to meet the TRANSEC mandate. The Air Force & Army Anti-Jam Modem (A3M) and the WAMS are PTW solutions that are under consideration. Navy GBS will require extensive development activities for the new PTW modem solution and must conduct a Follow-On Test & Evaluation (FOT&E) with Joint Services. Overall program efforts include technology insertion studies required to support satellite communications.

Technology Insertion, studies and implementation is necessary for military satellite communications systems development to support emerging technologies for Satellite Communications (SATCOM) programs.

The FY24 request will support GBS Transmission Security (TRANSEC) development to provide robust datalink protection of both uplink and downlink for the GBS broadcast.

Increase of $16.561M from FY23 to FY24 to support Wideband Anti-Jam Modem System (WAMS) development, integration, test, and certification efforts. This provides Resilient Command, Control, and Communications (RC3) and Distributed Maritime Operations (DMO) capability.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: NMT Resilient C3 Development	23.010	26.839	45.004	0.000	45.004
Articles:	-	-	-	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604280N / *JT TACTICAL RADIO SYSTEM (JTRS)*	**Project (Number/Name)** 0728 / *Navy Multiband Terminal (NMT)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Description: The details of Program Element 0604280N, Project 0728 for NMT are classified SECRET// NOFORN and are submitted to Congress in the classified budget justification books. ***FY 2023 Plans:*** The details of Program Element 0604280N, Project 0728 for NMT are classified SECRET//NOFORN and are submitted to Congress in the classified budget justification books. ***FY 2024 Base Plans:*** The details of Program Element 0604280N, Project 0728 for NMT are classified SECRET//NOFORN and are submitted to Congress in the classified budget justification books. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** The details of Program Element 0604280N, Project 0728 for NMT are classified SECRET//NOFORN and are submitted to Congress in the classified budget justification books.					
Title: Global Broadcast System (GBS) Transmission Security (TRANSEC) ***Articles:*** ***Description:*** Navy GBS is a member of the larger Joint C4I program, providing high speed (up to 45 Mbps per transponder)/large volume information/data delivery to forces afloat, ashore, and Naval Special Warfare Command. Leveraging the NMT antenna, GBS provides a one-way broadcast to Naval maritime forces across the spectrum of mission areas, to include land, air and naval warfare, special operations, strategic nuclear operations, strategic defense, theater missile defense, and space operations and intelligence in support of RC3. GBS Transmission Security (TRANSEC) is an operational requirement from the Joint GBS ORD and provides robust datalink protection of both uplink and downlink for the GBS broadcast. GBS is evaluating Protected Tactical Waveform (PTW) solutions to meet the TRANSEC mandate. The Air Force & Army Anti-Jam Modem (A3M) and the WAMS are PTW solutions that are under consideration. Navy GBS will require extensive development activities for the new PTW modem solution and must conduct a FOT&E with Joint Services. Overall program efforts include technology insertion studies required to support satellite communications. ***FY 2023 Plans:*** In alignment with GBS Executive Agent (USSF) PTW implementation, Navy GBS will procure modems for surface and shore testing and begin integration, assembly and testing activities (IA&T). Navy GBS program	1.778 -	3.989 -	2.475 -	0.000 -	2.475 -

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604280N / *JT TACTICAL RADIO SYSTEM (JTRS)*	**Project (Number/Name)** 0728 / *Navy Multiband Terminal (NMT)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
will additionally begin sub-surface development and integration activities as submarine platforms will require significant increase in engineering design changes compared to surface platforms. Complete TRANSEC Design and Studies. ***FY 2024 Base Plans:*** Continue sub-surface development and TRANSEC integration activities as submarine platforms will require significant increase in engineering design changes compared to surface platforms. Participate in GBS joint operational testing & evaluation for Protected Waveform (PTW). ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Requirements in FY24 decrease by $1.514M. In FY23, funding included the procurement of modems (hardware) required for integration. FY24 does not include any hardware procurements but continues the associated integration work.					
Title: Technology Insertion ***Articles:*** ***Description:*** Overall program efforts include technology insertion studies required to support satellite communications. ***FY 2023 Plans:*** Maintain alignment with the Navy's RC3 strategy and approach, Satellite Communications (SATCOM) programs transitioned from exercising an initial RC3 modem capability to utilizing the Wideband Anti-Jam Modem System (WAMS), which provides protected wideband SATCOM capability to the Fleet. Funds required to perform studies on how to integrate WAMS into the Satellite Communication (SATCOM) architecture. ***FY 2024 Base Plans:*** Continue to maintain alignment with the Navy's RC3 strategy and approach, Satellite Communications (SATCOM) programs transitioned from exercising an initial RC3 modem capability to utilizing the Wideband Anti-Jam Modem System (WAMS), which provides protected wideband SATCOM capability to the Fleet. Funds required to perform studies on how to integrate WAMS into the Satellite Communication (SATCOM) architecture. ***FY 2024 OCO Plans:***	0.150 -	0.150 -	0.150 -	0.000 -	0.150 -

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604280N / *JT TACTICAL RADIO SYSTEM (JTRS)*	**Project (Number/Name)** 0728 / *Navy Multiband Terminal (NMT)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
N/A					
Accomplishments/Planned Programs Subtotals	24.938	30.978	47.629	0.000	47.629

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• OPN/3216: *NAVY MULTIBAND TERMINAL (NMT)*	34.723	24.586	37.921	-	37.921	88.661	79.169	76.946	78.986	Continuing	Continuing

Remarks

The Other Appropriation represents remaining procurement and installation of NMT production units for Afloat and Shore requirements to reach Full Operational Capability. Funding also includes the procurement and installation of WAMS & AC2 modems as well as the installation of Advanced Time Division Multiple Access (TDMA) Interface Processors (ATIPs), X/KA Back-Fits, and Ashore Antennas.

D. Acquisition Strategy

The details of Program Element 0604280N, Project 0728 for NMT are classified SECRET//NOFORN and are submitted to Congress in the classified budget justification books.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604280N / *JT TACTICAL RADIO SYSTEM (JTRS)*	Project (Number/Name) 0728 / *Navy Multiband Terminal (NMT)*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Classified	C/CPFF	Not Specified : Not Specified	0.000	15.635	Jan 2022	19.467	Jan 2023	36.690	Jan 2024	-		36.690	Continuing	Continuing	Continuing
TRANSEC Development	SS/CPIF	L3 : San Diego, CA	0.000	0.750	Apr 2022	2.539	Feb 2023	0.975	Feb 2024	-		0.975	0.000	4.264	-
		Subtotal	0.000	16.385		22.006		37.665		-		37.665	Continuing	Continuing	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Classified	WR	Not Specified : Not Specified	0.000	3.902	Nov 2021	3.310	Nov 2022	3.685	Nov 2023	-		3.685	Continuing	Continuing	Continuing
GBS TRANSEC Engineering Support	WR	NIWC PAC : San Diego, CA	0.000	0.429	Jan 2022	0.600	Jan 2023	0.300	Jan 2024	-		0.300	0.000	1.329	-
GBS TRANSEC Engineering Support	WR	NIWC LANT : Charleston, SC	0.000	0.219	Jan 2022	0.300	Jan 2023	0.200	Jan 2024	-		0.200	0.000	0.719	-
GBS TRANSEC Engineering Support	WR	NUWC : Newport, RI	0.000	0.286	Jan 2022	0.400	Jan 2023	0.500	Jan 2024	-		0.500	0.000	1.186	-
		Subtotal	0.000	4.836		4.610		4.685		-		4.685	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation (DT&E)	WR	Classified : Classified	0.000	2.217	Nov 2021	2.541	Nov 2022	3.050	Nov 2023	-		3.050	Continuing	Continuing	Continuing
Developmental Test & Evaluation (DT&E)	WR	NIWC PAC : San Diego, CA	0.000	0.094	Jan 2022	0.150	Jan 2023	0.000	Jan 2024	-		0.000	0.000	0.244	-
Operational Test & Evaluation (OT&E)	WR	NIWC PAC : San Diego, CA	0.000	0.000		0.000		0.500	Jan 2024	-		0.500	0.000	0.500	-
		Subtotal	0.000	2.311		2.691		3.550		-		3.550	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604280N / *JT TACTICAL RADIO SYSTEM (JTRS)*	**Project (Number/Name)** 0728 / *Navy Multiband Terminal (NMT)*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract

Remarks

Increase in FY24 is due to Joint GBS testing for PTW.

Management Services ($ in Millions)

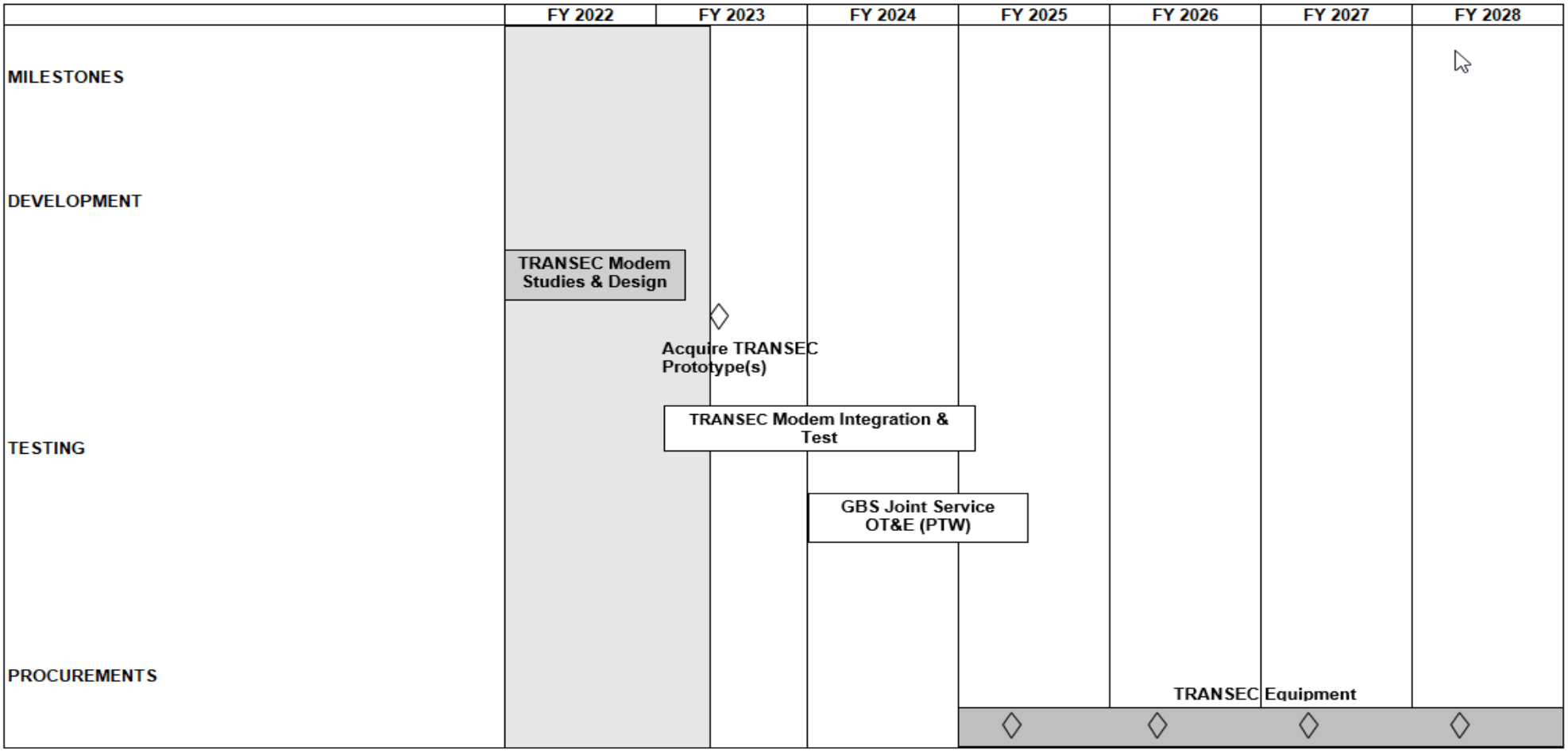
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Classified	C/CPFF	Not Specified : Not Specified	0.000	1.406	Nov 2021	1.671	Nov 2022	1.729	Nov 2023	-		1.729	Continuing	Continuing	Continuing
		Subtotal	0.000	1.406		1.671		1.729		-		1.729	Continuing	Continuing	N/A

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	24.938		30.978		47.629		-		47.629	Continuing	Continuing	N/A

Remarks

The details of Program Element 0604280N, Project 0728 for NMT are classified SECRET//NOFORN and are submitted to Congress in the classified budget justification books.

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604280N / *JT TACTICAL RADIO SYSTEM (JTRS)*	**Project (Number/Name)** 0728 / *Navy Multiband Terminal (NMT)*



Notes:
PU 0728 realigned from PE 0303109N to PE 0604280N in FY22

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604280N / *JT TACTICAL RADIO SYSTEM (JTRS)*	**Project (Number/Name)** 0728 / *Navy Multiband Terminal (NMT)*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 0728				
Classified (Place Holder)	1	2022	4	2028
Global Broadcast System(GBS) TRANSEC: Transec Modem Studies & Design	1	2022	1	2023
Global Broadcast System(GBS) TRANSEC: Transec Prototype	2	2023	2	2023
Global Broadcast System(GBS) TRANSEC: Transec Integration & Test	1	2023	1	2025
Global Broadcast System(GBS) TRANSEC: GBS Joint Service OT&E Protective Waveform (PTW)	1	2024	2	2025
Global Broadcast System(GBS) TRANSEC: TRANSEC Equipment FY25	2	2025	2	2025
Global Broadcast System(GBS) TRANSEC: TRANSEC Equipment FY26	2	2026	2	2026
Global Broadcast System(GBS) TRANSEC: TRANSEC Equipment FY27	2	2027	2	2027
Global Broadcast System(GBS) TRANSEC: TRANSEC Equipment FY28	2	2028	2	2028

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy												Date: March 2023
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604280N / *JT TACTICAL RADIO SYSTEM (JTRS)*				Project (Number/Name) 0729 / *Mobile Advanced Extremely High Frequency (AEHF) Terminal (MAT)*			
COST ($ in Millions)	**Prior Years**	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Cost To Complete**	**Total Cost**
0729: *Mobile Advanced Extremely High Frequency (AEHF) Terminal (MAT)*	0.000	26.739	75.986	107.680	-	107.680	62.728	1.040	1.047	1.069	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Project MDAP/MAIS Code: 290

A. Mission Description and Budget Item Justification

The details of Program Element 0604280N, Project 0729 are classified SECRET//NOFORN and are submitted to Congress in the classified budget justification books.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Mobile Advanced Extremely High Frequency (AEHF) Terminal (MAT)	26.739	75.986	107.680	0.000	107.680
Articles:	-	-	-	-	-
FY 2023 Plans: The details of Program Element 0604280N, Project 0729 are classified SECRET//NOFORN and are submitted to Congress in the classified budget justification books.					
FY 2024 Base Plans: The details of Program Element 0604280N, Project 0729 are classified SECRET//NOFORN and are submitted to Congress in the classified budget justification books.					
FY 2024 OCO Plans: N/A					
FY 2023 to FY 2024 Increase/Decrease Statement: The details of Program Element 0604280N, Project 0729 are classified SECRET//NOFORN and are submitted to Congress in the classified budget justification books.					
Accomplishments/Planned Programs Subtotals	26.739	75.986	107.680	0.000	107.680

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604280N / *JT TACTICAL RADIO SYSTEM (JTRS)*	**Project (Number/Name)** 0729 / *Mobile Advanced Extremely High Frequency (AEHF) Terminal (MAT)*

D. Acquisition Strategy

The details of Program Element 0604280N, Project 0729 are classified SECRET//NOFORN and are submitted to Congress in the classified budget justification books.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604280N / *JT TACTICAL RADIO SYSTEM (JTRS)*	Project (Number/Name) 0729 / *Mobile Advanced Extremely High Frequency (AEHF) Terminal (MAT)*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Classified	TBD	Not Specified : Not Specified	0.000	20.613	Apr 2022	67.936	Jan 2023	95.580	Jan 2024	-		95.580	Continuing	Continuing	Continuing
		Subtotal	0.000	20.613		67.936		95.580		-		95.580	Continuing	Continuing	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Classified	TBD	Not Specified : Not Specified	0.000	4.726	Nov 2021	6.350	Nov 2022	9.300	Nov 2023	-		9.300	Continuing	Continuing	Continuing
		Subtotal	0.000	4.726		6.350		9.300		-		9.300	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation (DT&E)	TBD	Not Specified : Not Specified	0.000	0.000		0.500	Nov 2022	1.300	Nov 2023	-		1.300	Continuing	Continuing	Continuing
		Subtotal	0.000	0.000		0.500		1.300		-		1.300	Continuing	Continuing	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Classified	TBD	Not Specified : Not Specified	0.000	1.400	Nov 2021	1.200	Nov 2022	1.500	Nov 2023	-		1.500	Continuing	Continuing	Continuing
		Subtotal	0.000	1.400		1.200		1.500		-		1.500	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604280N / *JT TACTICAL RADIO SYSTEM (JTRS)*	Project (Number/Name) 0729 / *Mobile Advanced Extremely High Frequency (AEHF) Terminal (MAT)*	

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	26.739		75.986		107.680		-		107.680	Continuing	Continuing	N/A

Remarks

The details of Program Element 0604280N, Project 0729 are classified SECRET//NOFORN and are submitted to Congress in the classified budget justification books.

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604280N / *JT TACTICAL RADIO SYSTEM (JTRS)*	**Project (Number/Name)** 0729 / *Mobile Advanced Extremely High Frequency (AEHF) Terminal (MAT)*

	FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Proj 0729																												
Classified (Place Holder)	[redacted]																											

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604280N / *JT TACTICAL RADIO SYSTEM (JTRS)*	**Project (Number/Name)** 0729 / *Mobile Advanced Extremely High Frequency (AEHF) Terminal (MAT)*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 0729				
Classified (Place Holder)	1	2022	4	2028

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604280N / *JT TACTICAL RADIO SYSTEM (JTRS)*	Project (Number/Name) 0742 / *Sub Integrated Ant System*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
0742: *Sub Integrated Ant System*	30.942	15.543	27.991	17.473	-	17.473	13.282	13.236	12.943	13.166	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The details of Program Element 0604280N, Project 0742 are classified SECRET//NOFORN and are submitted to Congress in the classified budget justification books.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Transition Engineering	1.948	0.000	0.000	0.000	0.000
Articles:	-	-	-	-	-
FY 2023 Plans: N/A					
FY 2024 Base Plans: N/A					
FY 2024 OCO Plans: N/A					
Title: Submarine High Data Rate (SubHDR) Pre-Planned Product Improvement (P3I)	1.873	0.000	0.000	0.000	0.000
Articles:	-	-	-	-	-
FY 2023 Plans: N/A					
FY 2024 Base Plans: N/A					
FY 2024 OCO Plans: N/A					
Title: Advanced High Data Rate (AdvHDR)	3.495	18.702	9.443	0.000	9.443
Articles:	-	-	-	-	-
FY 2023 Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604280N / *JT TACTICAL RADIO SYSTEM (JTRS)*	**Project (Number/Name)** 0742 / *Sub Integrated Ant System*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
The details of Program Element 0604280N, Project 0742 are classified SECRET//NOFORN and are submitted to Congress in the classified budget justification books. ***FY 2024 Base Plans:*** The details of Program Element 0604280N, Project 0742 are classified SECRET//NOFORN and are submitted to Congress in the classified budget justification books. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** The details of Program Element 0604280N, Project 0742 are classified SECRET//NOFORN and are submitted to Congress in the classified budget justification books.					
Title: Towed Buoy Antenna (AN/BRR-6/6B)	3.442	4.441	3.188	0.000	3.188
Articles:	-	-	-	-	-
FY 2023 Plans: The details of Program Element 0604280N, Project 0742 are classified SECRET//NOFORN and are submitted to Congress in the classified budget justification books. ***FY 2024 Base Plans:*** The details of Program Element 0604280N, Project 0742 are classified SECRET//NOFORN and are submitted to Congress in the classified budget justification books. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** The details of Program Element 0604280N, Project 0742 are classified SECRET//NOFORN and are submitted to Congress in the classified budget justification books.					
Title: Antenna Improvements	4.289	4.159	4.302	0.000	4.302
Articles:	-	-	-	-	-
FY 2023 Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604280N / *JT TACTICAL RADIO SYSTEM (JTRS)*	**Project (Number/Name)** 0742 / *Sub Integrated Ant System*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
The details of Program Element 0604280N, Project 0742 are classified SECRET//NOFORN and are submitted to Congress in the classified budget justification books. ***FY 2024 Base Plans:*** The details of Program Element 0604280N, Project 0742 are classified SECRET//NOFORN and are submitted to Congress in the classified budget justification books ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** The details of Program Element 0604280N, Project 0742 are classified SECRET//NOFORN and are submitted to Congress in the classified budget justification books.					
Title: Submarine Communication Transmitter Buoy (SECT)(AN/BST-1)	0.496	0.689	0.540	0.000	0.540
Articles:	-	-	-	-	-
FY 2023 Plans: The details of Program Element 0604280N, Project 0742 are classified SECRET//NOFORN and are submitted to Congress in the classified budget justification books. ***FY 2024 Base Plans:*** The details of Program Element 0604280N, Project 0742 are classified SECRET//NOFORN and are submitted to Congress in the classified budget justification books. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** The details of Program Element 0604280N, Project 0742 are classified SECRET//NOFORN and are submitted to Congress in the classified budget justification books.					
Accomplishments/Planned Programs Subtotals	15.543	27.991	17.473	0.000	17.473

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604280N / *JT TACTICAL RADIO SYSTEM (JTRS)*	**Project (Number/Name)** 0742 / *Sub Integrated Ant System*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• OPN/3130: *Submarine Communication Equipment*	64.642	74.569	82.378	-	82.378	81.531	81.629	82.258	83.905	Continuing	Continuing

Remarks

D. Acquisition Strategy

The details of Program Element 0604280N, Project 0742 are classified SECRET//NOFORN and are submitted to Congress in the classified budget justification books.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604280N / *JT TACTICAL RADIO SYSTEM (JTRS)*	Project (Number/Name) 0742 / *Sub Integrated Ant System*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Classified	TBD	Not Specified : Not Specified	20.566	10.329	Oct 2021	23.552	Oct 2022	13.550	Oct 2023	-		13.550	Continuing	Continuing	Continuing
		Subtotal	20.566	10.329		23.552		13.550		-		13.550	Continuing	Continuing	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Classified	TBD	Not Specified : Not Specified	1.603	0.873	Oct 2021	0.643	Oct 2022	1.122	Oct 2023	-		1.122	Continuing	Continuing	Continuing
		Subtotal	1.603	0.873		0.643		1.122		-		1.122	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Operational Test & Evaluation (OT&E)	TBD	Not Specified : Not Specified	6.981	2.683	Oct 2021	3.160	Oct 2022	2.269	Oct 2023	-		2.269	Continuing	Continuing	Continuing
		Subtotal	6.981	2.683		3.160		2.269		-		2.269	Continuing	Continuing	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Classified	TBD	Not Specified : Not Specified	1.792	1.658	Feb 2022	0.636	Feb 2023	0.532	Feb 2024	-		0.532	Continuing	Continuing	Continuing
		Subtotal	1.792	1.658		0.636		0.532		-		0.532	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604280N / *JT TACTICAL RADIO SYSTEM (JTRS)*	Project (Number/Name) 0742 / *Sub Integrated Ant System*	

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	30.942	15.543		27.991		17.473		-		17.473	Continuing	Continuing	N/A

Remarks

- Prior Year cost data is provided under PE 0604503N, Project 0742
- The details of Program Element 0604280N, Project 0742 are classified SECRET//NOFORN and are submitted to Congress in the classified budget justification books.

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604280N / *JT TACTICAL RADIO SYSTEM (JTRS)*	**Project (Number/Name)** 0742 / *Sub Integrated Ant System*

	FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Proj 0742																												
Classified (Place Holder)	[redacted]																											

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604280N / *JT TACTICAL RADIO SYSTEM (JTRS)*	**Project (Number/Name)** 0742 / *Sub Integrated Ant System*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 0742				
Classified (Place Holder)	1	2022	4	2028

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604280N / *JT TACTICAL RADIO SYSTEM (JTRS)*	Project (Number/Name) 0921 / *NAVSTAR GPS Equipment*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
0921: *NAVSTAR GPS Equipment*	92.564	28.011	36.380	37.581	-	37.581	52.490	22.387	21.243	21.671	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The FY 2024 funding request was increased by $1.201M to support the Global Positioning System (GPS) Modernization Miniaturized Airborne GPS Receiver 2000-Modernization (MAGR2K-M) Developmental Test (DT)/Operational Test (OT) on the following air platforms: CMV-22B and MV-22B.

Navigation Satellite Timing & Ranging (NAVSTAR) GPS project (0921) encompasses the Navy's efforts to pace the growing threat to GPS Navigation through the fielding of new GPS receivers, Anti-Jam (AJ) Antennas, and Assured Positioning Navigation and Timing (A-PNT) technologies across all Navy platform types. NAVSTAR GPS is a group of A-PNT systems that provides authorized users with secure, worldwide, all weather, three dimensional position, velocity, and precise time data. NAVSTAR GPS provides A-PNT capability to Command, Control, Communications, Computer, Intelligence, Surveillance and Reconnaissance (C4ISR) and combat systems in standalone and networked architectures throughout air and maritime domains. This project is comprised of four distinct efforts: Sea Navigation Warfare (NAVWAR), GPNTS, Air NAVWAR and GPS Modernization. Sea NAVWAR provides AJ antennas and Global Positioning System (GPS) - Based Positioning, Navigation and Timing (PNT) Service (GPNTS) provides GPS Receivers and A-PNT technology to surface platforms, and Air NAVWAR provides AJ antennas and GPS Modernization provides GPS receivers to air platforms. Research, Development, Testing and Evaluation (RDT&E) funds are used to perform all the non-recurring GPS Surface Ship, Submarine and Aircraft Development, Integration, and Testing efforts in support of NAVSTAR GPS.

The Air and Sea NAVWAR programs provide continued access to GPS information in a denied or impeded electronic environment. Development efforts for both programs provide improvements to various platform type antennas and ensure compatibility with the new Military Code (M-Code) signal. The Air NAVWAR program continues integration efforts using GPS Antenna System (GAS-1), Advanced Digital Antenna Production (ADAP), and other AJ antennas on air platforms while investigating smaller AJ antennas for space constrained platforms and aircraft with unique requirements. The Sea NAVWAR program integrates AJ antennas onto surface and subsurface platforms. The Sea NAVWAR program will continue to research the viability and development of enhanced AJ techniques and technologies.

The GPNTS system is being developed to serve as the primary A-PNT system for the surface Navy to ensure reliable PNT capability and interoperability insertion into GPS receivers and associated C4ISR and Combat Systems in a denied environment. GPNTS pairs with AJ antennas and provides precise A-PNT data required for combat, weapons, command, control, communications, navigation, and other systems, as well as providing the time synchronization critical for network environments. GPNTS will back fit current PNT/GPS systems as well as serve as a forward fit for new platforms. GPNTS is an Open Architecture (OA) development, enabling rapid software and hardware based capability improvements to be inserted without a requirement for single-source contracting. GPNTS will host the Air Force GPS Directorate-developed Military GPS User Equipment (MGUE) card, allowing access to the new GPS M-Code signal. GPNTS will provide more robust and secure GPS/PNT capabilities than is currently in the Fleet. The system will provide the capability to migrate non-real time GPS data toward a Common Computing Environment (CCE) and provide a path for the integration of advanced navigation systems and sensors. GPNTS provides A-PNT capability to C4ISR and Combat Systems in standalone and networked architectures throughout maritime domains.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604280N / *JT TACTICAL RADIO SYSTEM (JTRS)*	**Project (Number/Name)** 0921 / *NAVSTAR GPS Equipment*

Global Position System (GPS) Modernization integrates and tests the Navy's the Military GPS User Equipment (MGUE) being developed by the United States Space Force (USSF) and United States Air Force (USAF) Life Cycle Material Command into Naval aircraft to provide improved access to GPS signals in challenged and jammed environments. This project will provide central coordination and management of priorities and funding of multiple parallel efforts to integrate different MGUE into various type/model/series aircraft across multiple platform program offices. Due to the diversity of Naval aircraft, each platform will require unique Prime Vendor Integration (PVI) and testing that includes software updates to avionics and mission computers as well as modifications to the airframe based on Size, Weight, Power and Cost (SWaP-C) requirements. GPS Modernization delivers increased GPS Anti-Jam (AJ) protection through modernized GPS receivers that will utilize the new Military Code (M-Code) GPS Signal in Space, incorporate enhanced cryptology, enable blue force GPS electronic attack, deliver greater position and time accuracy, and provide improved protection against signal spoofing as compared to legacy receivers. This effort supports Navy compliance with Public Law 111-383 which prohibits spending funds on non-M-Code GPS user equipment after FY 2017.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Sea Navigation Warfare (NAVWAR)	1.124	1.105	1.100	0.000	1.100
Articles:	-	-	-	-	-
Description: Sea NAVWAR provides the Warfighter continued access to GPS through the use of AJ Antenna Systems designed to counter GPS Electronic Warfare threats due to intentional and unintentional interference on surface and subsurface platforms through the continued development of AJ antennas. Program currently supports Increment 2 Advanced Digital Antenna Production (ADAP) antenna for surface platforms. Increment 2 ADAP continues to research the viability and development of smaller AJ antennas for surface platforms with SWaP-C restrictions and will ensure compatibility with the Military Code (M-Code) signal. Increment 2 ADAP received acquisition authority (November 2018) to add a small antenna variant to the program baseline.					
FY 2023 Plans: Increment 2 Advanced Digital Antenna Production (ADAP) antenna: Continue government oversight, system engineering, logistics, contracts, and programmatic management efforts for Increment 2 ADAP to include assessment of new AJ capabilities and technologies. Continue investigation of enhanced AJ capabilities for integration into existing Sea Naval Warfare (NAVWAR) antenna systems. Continue technology developmental efforts with industry to mature technical base for a next-generation AJ antenna.					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604280N / *JT TACTICAL RADIO SYSTEM (JTRS)*	**Project (Number/Name)** 0921 / *NAVSTAR GPS Equipment*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Begin integration of Multi-Platform Anti-Jam GPS Navigation Antenna (MAGNA) with Mounted Assured PNT System (MAPS) and Dismounted Assured PNT System (DAPS) units to support fleet experimentation to demonstrate MAPS/DAPS as a potential replacement to the Defense Advanced GPS Receiver (DAGR). ***FY 2024 Base Plans:*** Increment 2 Advanced Digital Antenna Production (ADAP) antenna: Continue government oversight, system engineering, logistics, contracts, and programmatic management efforts for Increment 2 Advanced Digital Antenna Production (ADAP) to include assessment of new Anti-Jam (AJ) capabilities and technologies. Continue investigation of enhanced AJ capabilities for integration into existing Sea Naval Warfare (NAVWAR) antenna systems. Continue technology developmental efforts with industry to mature technical base for next-generation AJ antenna. Complete integration of MAGNA with Mounted Assured PNT System (MAPS) and Dismounted Assured PNT System (DAPS) units to support fleet experimentation to demonstrate MAPS/DAPS as a potential replacement to the Defense Advanced GPS Receiver (DAGR). ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Funding decrease of $0.005M from FY2023 to FY2024 due to completion of MAPS/DAPS integration in FY2024.					
Title: Global Positioning System (GPS) - Based Positioning, Navigation and Timing (PNT) Service (GPNTS) ***Articles:*** ***Description:*** The GPNTS system is being developed to serve as the primary Assured Positioning Navigation and Timing (A-PNT) system for the surface Navy to ensure reliable PNT capability and interoperability insertion into GPS receivers and associated Command, Control, Communications, Computers (C4) Intelligence, Surveillance and Reconnaissance (ISR) and Combat Systems in a denied environment. GPNTS pairs with AJ antennas and provides precise A-PNT data required for combat, weapons, command, control, communications, navigation, and other systems, as well as providing the time synchronization critical for network environments. GPNTS will back fit current PNT/GPS systems as well as serve as a forward fit for new platforms. GPNTS	1.909 -	2.933 -	1.707 -	0.000 -	1.707 -

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604280N / *JT TACTICAL RADIO SYSTEM (JTRS)*	**Project (Number/Name)** 0921 / *NAVSTAR GPS Equipment*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
provides a robust, secure, integrated and interoperable network-centric PNT capability to include: Selective Availability Anti-Spoofing Security Module (SAASM) GPS security architecture; migration path to modernized signal-in-space (M-Code); open architecture approach allowing for the integration of alternate PNT sources; scalable solution that consolidates platform receivers, improved anti-jam and anti-spoof mechanisms; and extended timing holdover in a Global Positioning System (GPS) denied environment. As fielding of the GPS - Based Positioning, Navigation and Timing (PNT) Service (GPNTS) system continues, RDTEN will support product improvements such as the integration of the Office of Naval Research (ONR) developed assured-PNT Future Naval Capability (FNC), Non-GPS Aided Positioning for Surface Ships (NoGAPSS) as well as software enhancements for Assured-PNT sensor suite integration to include Celestial Navigation and Enhanced Assurance Timing (EAT). ***FY 2023 Plans:*** Commence efforts to develop and test a GPNTS system capable of hosting the Automated Celestial Navigation System (ACNS) below deck hardware. Effort is in direct support of the NoGAPSS FNC. Commence coordination activities to prepare for and conduct NoGAPSS Technical Evaluation. Continue coordination activities to prepare for and conduct the required Follow-on Operational Test and Evaluation (FOT&E) in support of a fielding decision for the NoGAPSS capability. Continue platform integration and development to support GPNTS on both Littoral Combat Ships (LCS) variants as directed by the Navy to provide common Assured Positioning Navigation and Timing (A-PNT) capabilities and Navigation Warfare (NAVWAR) compliance on LCS. Integration efforts require identifying interface requirements and analysis that utilizes existing variants of GPNTS. Continue NoGAPSS Model Based System Engineering (MBSE) implementation as directed by the Navy to provide a navigation system-of-systems architecture to integrate all sources of Position, Velocity, Attitude and Timing (PVAT) data and the NoGAPSS capability. Continue software defect resolution with software vendor in support of Full Operational Capability (FOC). ***FY 2024 Base Plans:***					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604280N / *JT TACTICAL RADIO SYSTEM (JTRS)*	**Project (Number/Name)** 0921 / *NAVSTAR GPS Equipment*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Continue efforts to develop and test a GPNTS system capable of hosting the Automated Celestial Navigation System (ACNS) below deck hardware. Effort is in direct support of the NoGAPSS FNC. Conduct Environmental Qualification Testing (EQT) of a GPNTS system hosting Automated Celestial Navigation System (ACNS) below-deck hardware in support of NoGAPSS FNC. Commence and complete Aegis Integration Event (AIE) for GPNTS software 2.0.076 to achieve Combat Systems certification in support of NoGAPSS FNC. Conduct NoGAPSS Technical Evaluation. Conduct the required Follow-on Operational Test and Evaluation (FOT&E) in support of a fielding decision for the NoGAPSS capability. Complete platform integration and development to support GPNTS on both Littoral Combat Ships (LCS) variants as directed by the Navy to provide common Assured Positioning Navigation and Timing (A-PNT) capabilities and Navigation Warfare (NAVWAR) compliance on LCS. Integration efforts require identifying interface requirements and analysis that utilizes existing variants of GPNTS. Complete NoGAPSS Model Based System Engineering (MBSE) implementation as directed by the Navy to provide a navigation system-of-systems architecture to integrate all sources of Position, Velocity, Attitude and Timing (PVAT) data and the NoGAPSS capability. Continue software defect resolution with software vendor in support of Full Operational Capability (FOC). ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Funding decrease of $1.226M from FY2023 to FY2024 due to completion of the platform integration and development to support GPNTS on both Littoral Combat Ships (LCS) variants as directed by the Navy to provide common Assured Positioning Navigation and Timing (A-PNT) capabilities and Navigation Warfare (NAVWAR) compliance on LCS, and completion of the NoGAPSS Model Based System Engineering (MBSE)					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604280N / *JT TACTICAL RADIO SYSTEM (JTRS)*	**Project (Number/Name)** 0921 / *NAVSTAR GPS Equipment*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
implementation as directed by the Navy to provide a navigation system-of-systems architecture to integrate all sources of Position, Velocity, Attitude and Timing (PVAT) data and the NoGAPSS capability.					
Title: Air Navigation Warfare (NAVWAR)	5.789	3.670	3.595	0.000	3.595
Articles:	-	-	-	-	-
Description: Air Navigation Warfare (NAVWAR) provides the Warfighter continued access to Global Positioning System (GPS) through the use of Anti-Jam (AJ) Antenna Systems designed to counter GPS Electronic Warfare threats due to intentional and unintentional interference. Air NAVWAR efforts include investigation and testing of emerging technologies to improve AJ capability and technologies such as development of miniaturized very small antenna systems to allow for the capability on small variant aircraft. Efforts will also include development to ensure antennas can accept the new Military Code (M-Code) signal.					
FY 2023 Plans: Continue ground and flight testing of Multi-Platform Anti-Jam Navigation Antenna (MAGNA)-I on AH-1Z and UH-1Y helicopters.					
Continue to support Assured-Positioning Navigation and Timing (A-PNT) efforts by working with Navy Air platforms on navigation requirements and coordinating with surface Navy platforms to leverage synergies.					
Continue Global Positioning System (GPS) Demonstrations and laboratory testing of GPS receivers with associated antennas at Facilities for Antenna and Radar Cross Section (RCS) Measurements (FARM), to include continued beam-steering comparison tests and comparing legacy anti-jam and modernized antennas to address obsolescence issues.					
Continue to provide subject matter expertise to various platforms (including MQ-4C, MQ-25, RQ-21, F/A-18C/D) as they consider various Anti-Jam (AJ) solutions.					
Complete Non-Recurring Engineering (NRE) integration efforts for Multi-Platform AJ GPS Navigation Antenna Integrated (MAGNA-I) on AH-1Z, UH-1Y helicopters to include platform interface modifications; software development, integration testing, and hardware integration. Conduct functional flight testing in a benign environment. Finalize and release the MAGNA-I integration technical data package.					
FY 2024 Base Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604280N / *JT TACTICAL RADIO SYSTEM (JTRS)*	**Project (Number/Name)** 0921 / *NAVSTAR GPS Equipment*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Continue to support Assured-Positioning Navigation and Timing (A-PNT) efforts by working with Navy Air platforms on navigation requirements and coordinating with surface Navy platforms to leverage synergies. Continue Global Positioning System (GPS) Demonstrations and laboratory testing of GPS receivers with associated antennas at Facilities for Antenna and Radar Cross Section (RCS) Measurements (FARM), to include continued anti-jam comparison tests, including comparing legacy anti-jam and modernized antennas to address obsolescence issues. Continue to provide subject matter expertise to various platforms (including MQ-4C, MQ-25, RQ-21, F/A-18C/D) as they consider various AJ solutions. Complete ground and flight testing of MAGNA-I on AH-1Z and UH-1Y helicopters. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Funding decrease of $0.075M from FY 2023 to FY 2024 due to the completion of the AH-1Z/UH-1Y MAGNA-I integration effort in FY 2023.					
Title: Global Positioning System (GPS) Modernization	19.189	28.672	31.179	0.000	31.179
Articles:	37	19	23	-	23
Description: GPS Modernization delivers increased GPS AJ protection through modernized GPS receivers that will utilize the new Military Code (M-Code) GPS Signal in Space, incorporate enhanced cryptology, enable blue force GPS electronic attack, deliver greater position and time accuracy, and provide improved protection against signal spoofing as compared to legacy receivers. This effort supports Navy's compliance with Public Law 111-383, which requires that all GPS user equipment be capable of receiving the new GPS M-Code signal after FY 2017. To meet the Navy's fielding timeline, system engineering and requirement development efforts must begin before actual delivery of Military GPS User Equipment (MGUE). The integration timeline of modernized GPS receivers is 5+ years from planning to test and is dependent on platform. Each type/model/series aircraft uses a unique GPS receiver and GPS system configuration, which requires separate parallel Prime Vendor Integration (PVI) and testing efforts to include: software updates to avionics and mission computers; modifications to the airframe					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
based on Size, Weight, Power and Cost (SWaP-C) requirements; coordination with each Program Management Air (PMA) organization; management, oversight and support of each effort; and contracting and working with each Prime Vendor Integrator for the respective platform. Project currently consists of eleven (11) parallel efforts that integrate five (5) different Military Code (M-Code) Global Positioning System (GPS) receivers into different type model series aircraft. The M-Code receivers are being developed under two (2) Air Force programs, Miniaturized Airborne GPS Receiver 2000-Modernization (MAGR2K-M) and Embedded GPS/Inertial Navigation System (EGI-M). The EGI-M program includes the LN-351, LN-300, Accurate Navigation System - Modernization (ANAV-M) and H-764-M. CMV-22B/MV-22B and E-6B will integrate the MAGR2K-M. F/A-18E/F and EA-18G will integrate the ANAV-M. E-2D, CH-53K, P-8A, MQ-4C, and MQ-8C will integrate the LN-351. KC-130J will integrate the H-764-M. MH-60 R/S will integrate the LN-300. ***FY 2023 Plans:*** Procure for Accurate Navigation System - Modernization (ANAV-M) test article receivers to provide production representative to support integration and testing for F/A-18E/F and EA-18G. Procure LN-351 test article receivers to provide production representative M-Code receivers to support integration and testing for UH-1Y/AH-1Z and MQ-4C. Commence Developmental Test (DT)/Operational Test (OT) for E-6B MAGR2K-M. Commence early integration efforts with Engineering & Manufacturing Development (EMD) units for E-2D platforms. Commence Military Code (M-Code) integration efforts to include PIDS review, Environmental Qualification Assessment, Structural Strength Analysis, Electrical Power Load Analysis for E-2D and CH-53K. Commence efforts for MH-60 R/S missionization to develop missionized MH-60 R/S specific requirements for LN-300 integration that will leverage Positioning, Navigation, and Timing (PNT) program office contracts.					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Commence Military Code (M-Code) integration efforts to include but not limited to Systems Requirement Review (SRR), structural analysis, electrical power load analysis, human engineering, product support analysis for P-8A, MQ-4C, MQ-8C, and KC-130J. Continue to support Prime Vendor Integration (PVI) on two (2) air platforms: CMV-22B and MV-22B. Complete Prime Vendor Integration (PVI) on the E-6B platform. Conduct Military Code (M-Code) Prime Vendor Integration (PVI) on the CH-53K air platform. Continue CH-53K missionization to develop missionized CH-53K specific requirements for LN-351 integration. Continue providing overarching management, central coordination, government oversight and guidance, shared expertise, and engineering during Military Code (M-Code) receiver development to review M-Code receiver requirements and ensure these requirements support aircraft performance and integration for MV-22B, CMV-22B, E-6B, F/A-18E/F, EA-18G, E-2D, MH-60 R/S, CH-53K, P-8A, MQ-4C, MQ-8C, and KC-130J. Continue to support United States Space Force (USSF) Miniaturized Airborne Global Positioning System (GPS) receiver 2000-Modernization (MAGR2K-M) & Embedded GPS/Inertial Navigation System (EGI-M) GPS receiver development, performance, and certification testing. Continue to support USSF MAGR2K-M & EGI-M GPS receiver program events to include but not limited to Systems Engineering and Technical Reviews (SETR), Integrated Baseline Reviews, Preliminary Design Reviews (PDR) and Critical Design Review (CDR). Continue teaming with the United States Air Force (USAF) to determine the feasibility of using a Janus Software Design Receiver (SDR) as a GPS Receiver Card and continue to study opportunities to incorporate improvements into GPS receivers. Complete laboratory testing of MAGR2K-M receivers in government labs.					
FY 2024 Base Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Conduct Military Code (M-Code) Prime Vendor Integration (PVI) on the following three (3) air platforms: F/A-18E/F, EA-18G, and E-2D. Continue Military Code (M-Code) integration efforts to develop integration requirements for P-8A, MQ-4C, MQ-8C, and KC-130J. Commence early integration efforts with Engineering & Manufacturing Development (EMD) units for KC-130J air platform. Commence Developmental Test (DT)/Operational Test (OT) of MAGR2K-M GPS Receivers on two (2) air platforms: CMV-22B and MV-22B. Continue Developmental Test (DT)/Operational Test (OT) for E-6B MAGR2K-M. Continue early integration efforts with Engineering & Manufacturing Development (EMD) units for E-2D platforms. Continue to support Prime Vendor Integration (PVI) on three (3) air platforms: CMV-22B, MV-22B, and CH-53K. Continue CH-53K missionization to develop missionized CH-53K specific requirements for LN-351 integration. Continue Military Code (M-Code) integration efforts to include PIDS review, Environmental Qualification Assessment, Structural Strength Analysis, Electrical Power Load Analysis for E-2D and CH-53K. Continue efforts for MH-60 R/S missionization to develop missionized MH-60 R/S specific requirements for LN-300 integration that will leverage Positioning, Navigation, and Timing (PNT) program office contracts. Continue providing overarching management, central coordination, government oversight and guidance, shared expertise, and engineering during Military Code (M-Code) receiver development to review M-Code receiver requirements and ensure these requirements support aircraft performance and integration for CMV-22B, MV-22B, E-6B, F/A-18E/F, EA-18G, E-2D, MH-60 R/S, CH-53K, P-8A, MQ-4C, MQ-8C, and KC-130J.					

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Continue to support United States Space Force (USSF) Miniaturized Airborne Global Positioning System (GPS) receiver 2000-Modernization (MAGR2K-M) & Embedded GPS/Inertial Navigation System (EGI-M) GPS receiver development, performance, and certification testing. Continue to support USSF MAGR2K-M & EGI-M GPS receiver program events to include but not limited to Systems Engineering and Technical Reviews (SETR), Integrated Baseline Reviews, Preliminary Design Reviews (PDR) and Critical Design Review (CDR). Continue teaming with the United States Air Force (USAF) to determine the feasibility of using a Janus Software Design Receiver (SDR) as a GPS Receiver Card and continue to study opportunities to incorporate improvements into GPS receivers. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Funding increase of $2.507M from FY2023 to FY2024 to support MAGR2K-M Developmental Test (DT)/ Operational Test (OT) for the CMV-22B and MV-22B, and integration of the ANAV-M and LN-351 test article receivers on the F/A-18E/F, EA-18G, CH-53K, E-2D, UH-1Y/AH-1Z and MQ-4C.					
Accomplishments/Planned Programs Subtotals	28.011	36.380	37.581	0.000	37.581

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• OPN/2657: *NAVSTAR GPS Receivers (Space)*	33.097	30.439	37.319	-	37.319	41.867	42.771	43.554	44.539	Continuing	Continuing
• APN/0577: *Common Avionics Changes*	102.861	128.120	136.197	-	136.197	258.943	264.323	308.865	347.149	1,841.037	6,408.034

Remarks

D. Acquisition Strategy

Both the Navigation Warfare (NAVWAR) Air and Sea programs will continue to integrate improved Anti-Jam (AJ) capability onto air and sea platforms and ensure compatibility with new Military Code (M-Code) signal.

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Global Positioning System (GPS) - based Positioning, Navigation, and Timing (PNT) Service (GPNTS) program will develop, acquire, and field GPNTS, a scalable Selective Availability/Anti- Spoofing Module (SAASM) GPS-based service-oriented architecture PNT system that will provide an open, extensible, modernized replacement for the current fleet PNT systems. GPNTS will also integrate Military GPS User Equipment (MGUE) and the Office of Naval Research (ONR) developed Non-GPS Aided Positioning for Surface Ships (NoGAPSS) capabilities. A firm fixed price contract was awarded March 2018 to procure Low Rate Initial Production (LRIP) and Full Rate Production (FRP) systems.

GPS Modernization will manage the non-recurring engineering required to conduct systems engineering, integration and test of modernized GPS receivers and utilize United States Space Force (USSF) hardware contracts, and Navy air platform integration contracts.

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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Air NAVWAR Development	MIPR	Mayflower : Bedford, MA	2.892	0.000		0.000		0.000		-		0.000	0.000	2.892	-
Air NAVWAR MAGNA-I Integration	C/CPIF	Bell Helicopter : Fort Worth, TX	2.071	2.170	Jan 2022	0.588	Jan 2023	0.000		-		0.000	0.000	4.829	-
Air NAVWAR Development Support	WR	NAWC : Pax River, MD	1.795	0.000		0.000		0.000		-		0.000	0.000	1.795	-
Air NAVWAR Govt Eng Support	WR	NAWC : Pax River, MD	2.670	1.338	Dec 2021	0.986	Dec 2022	1.102	Dec 2023	-		1.102	Continuing	Continuing	Continuing
Air NAVWAR Systems Engineering	WR	NIWC PAC : San Diego, CA	0.250	0.000		0.000		0.000		-		0.000	0.000	0.250	-
Air NAVWAR Product Development	WR	GPS Directorate : Los Angeles, CA	0.495	0.000		0.000		0.000		-		0.000	0.000	0.495	-
Air NAVWAR Development - Studies	MIPR	MITRE : Bedford, MA	0.750	0.370	Nov 2021	0.000		0.000		-		0.000	0.000	1.120	-
Sea NAVWAR Development Support	WR	SSC PAC, NUWC : San Diego, Newport	0.763	0.464	Dec 2021	0.655	Dec 2022	0.396	Dec 2023	-		0.396	Continuing	Continuing	Continuing
Sea NAVWAR Govt Eng Support	WR	NIWC PAC, NUWC : San Diego, Newport	0.000	0.000		0.000		0.244	Dec 2023	-		0.244	Continuing	Continuing	Continuing
GPNTS SW / NoGAPSS Development	C/CPFF	Raytheon : San Diego, CA	12.310	0.000		1.250	Jan 2023	0.620	Jan 2024	-		0.620	Continuing	Continuing	Continuing
GPNTS Development Support	WR	NIWC PAC : San Diego, CA	1.630	0.000		0.000		0.000		-		0.000	0.000	1.630	-
GPNTS Govt Eng Support	WR	NIWC PAC : San Diego, CA	2.143	1.058	Dec 2021	1.055	Dec 2022	0.885	Dec 2023	-		0.885	Continuing	Continuing	Continuing
GPS Mod Development - Requirements Development	C/IDIQ	Boeing : St Louis, MO	0.137	0.450	Jan 2022	0.000		0.000		-		0.000	0.000	0.587	-
GPS Mod Development ANAV-M Integration F/18 E/F & EA-18G	C/CPIF	Boeing : St Louis, MO	0.000	0.164	Jan 2022	1.747	Jan 2023	2.491	Jan 2024	-		2.491	Continuing	Continuing	Continuing
GPS Mod Development - Requirements Development	C/IDIQ	Northup Grumman : Melbourne, FLA	0.557	0.112	Jan 2022	0.000		0.000		-		0.000	0.000	0.669	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
GPS Mod Development LN-351 Integration E-2D	C/CPIF	Northup Grumman : Melbourne, FLA	0.000	0.000		1.214	Jan 2023	2.204	Jan 2024	-		2.204	Continuing	Continuing	Continuing
GPS Mod Development MAGR2K-M MV-22B,CMV-22B	C/CPIF	Bell Boeing : Amarillo, TX	4.609	3.444	Feb 2022	5.556	Feb 2023	5.585	Feb 2024	-		5.585	Continuing	Continuing	Continuing
GPS Mod Development CH-53K	C/CPIF	Sikorsky : Stratford, CT	0.884	0.000		0.000		0.000		-		0.000	0.000	0.884	-
GPS Mod Development LN-351 Integration CH-53K	C/CPIF	Sikorsky : Stratford, CT	0.000	0.000		1.256	Jan 2023	3.558	Jan 2024	-		3.558	Continuing	Continuing	Continuing
GPS Mod Development - Missionization	C/CPFF	Northrup Grumman : Los Angeles, CA	0.700	3.371	Jan 2022	3.730	Jan 2023	3.409	Jan 2024	-		3.409	Continuing	Continuing	Continuing
GPS Mod Development LN-351 Hardware	C/IDIQ	Northup Grumman : Warner Robbins, GA	0.000	4.305	Jan 2022	4.474	Jan 2023	0.000		-		0.000	0.000	8.779	-
GPS Mod Development MH-60	C/CPIF	Lockheed Martin : Owego, NY	1.068	0.000		0.000		0.000		-		0.000	0.000	1.068	-
GPS Mod Product Development ANAV-M Hardware	C/IDIQ	Honeywell : Clearwater, FL	0.000	0.000		3.082	Jan 2023	0.000		-		0.000	0.000	3.082	-
GPS Mod Development - Studies	MIPR	MITRE : Bedford, MA	1.050	1.187	Nov 2021	1.127	Nov 2022	2.616	Nov 2023	-		2.616	Continuing	Continuing	Continuing
GPS Mod Development Support	WR	NIWC PAC, NAWC : San Diego, Pax River	1.244	0.000		0.000		0.000		-		0.000	0.000	1.244	-
GPS Mod Govt Eng Support	WR	NIWC PAC, NAWC : San Diego, Pax River	21.684	2.659	Nov 2021	2.712	Nov 2022	2.412	Jan 2024	-		2.412	Continuing	Continuing	Continuing
GPS Mod Product Development	WR	GPS Directorate : Los Angeles, CA	1.399	0.000		0.000		0.393	Dec 2023	-		0.393	Continuing	Continuing	Continuing
		Subtotal	61.101	21.092		29.432		25.915		-		25.915	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
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Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Contract Engineering Services	C/CPAF	BAH : San Diego, Pax River, China Lake	2.423	0.250	Nov 2021	0.205	Nov 2022	0.653	Nov 2023	-		0.653	Continuing	Continuing	Continuing
Enginering Services	WR	NIWC PAC, NAWC : San Diego, Pax River	3.017	1.645	Nov 2021	1.548	Nov 2022	1.537	Nov 2023	-		1.537	Continuing	Continuing	Continuing
Integrated Logistics Support	WR	NIWC PAC, NAWC : San Diego, Pax River	3.202	0.832	Dec 2021	0.482	Dec 2022	0.657	Dec 2023	-		0.657	Continuing	Continuing	Continuing
Software Contract Support	C/CPFF	Raytheon : San Diego	8.568	0.500	Nov 2021	0.445	Nov 2022	0.000		-		0.000	0.000	9.513	-
		Subtotal	17.210	3.227		2.680		2.847		-		2.847	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation (DT&E)	WR	NAWC : Pax River	2.254	0.534	Nov 2021	0.809	Nov 2022	1.207	Nov 2023	-		1.207	Continuing	Continuing	Continuing
Prior Year Developmental Test & Evaluation Not Funded FYDP (PYDT&E)	WR	NIWC PAC, NUWC : San Diego, Newport	3.443	0.000		0.000		0.000		-		0.000	0.000	3.443	-
Operational Test & Evaluation (OT&E)	WR	NIWC PAC : San Diego	1.374	0.351	Nov 2021	0.183	Nov 2022	0.202	Nov 2023	-		0.202	Continuing	Continuing	Continuing
Operational Test & Evaluation (OT&E)	WR	NIWC PAC, NAWC PAX : San Diego, Pax River	0.000	0.000		0.000		4.477	Nov 2023	-		4.477	Continuing	Continuing	Continuing
		Subtotal	7.071	0.885		0.992		5.886		-		5.886	Continuing	Continuing	N/A

Remarks

Funding increase of $4.894M from FY2023 to FY2024 primarily to support the MAGR2K-M Developmental Test (DT)/Operational Test (OT) on the MV-22B and CMVB-22 air platforms and increased cost to complete the MAGNA-I ground and flight testing on UH-1Y/AH-1Z helicopters.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
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Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	C/CPAF	BAH : San Diego, Pax River, China Lake	7.182	2.807	Nov 2021	3.276	Nov 2022	2.933	Nov 2023	-		2.933	Continuing	Continuing	Continuing
		Subtotal	7.182	2.807		3.276		2.933		-		2.933	Continuing	Continuing	N/A

	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	92.564	28.011		36.380		37.581		-		37.581	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
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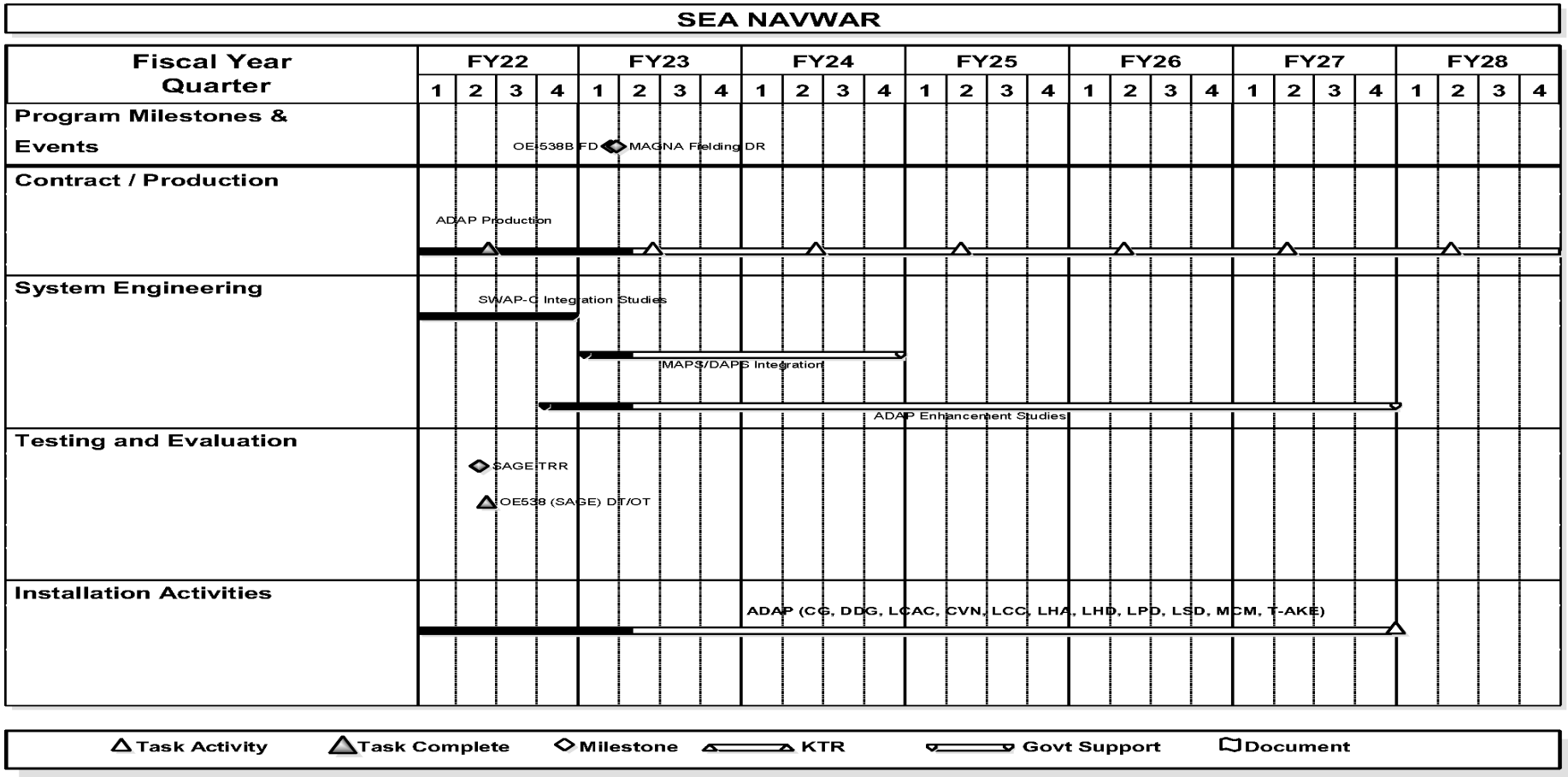

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
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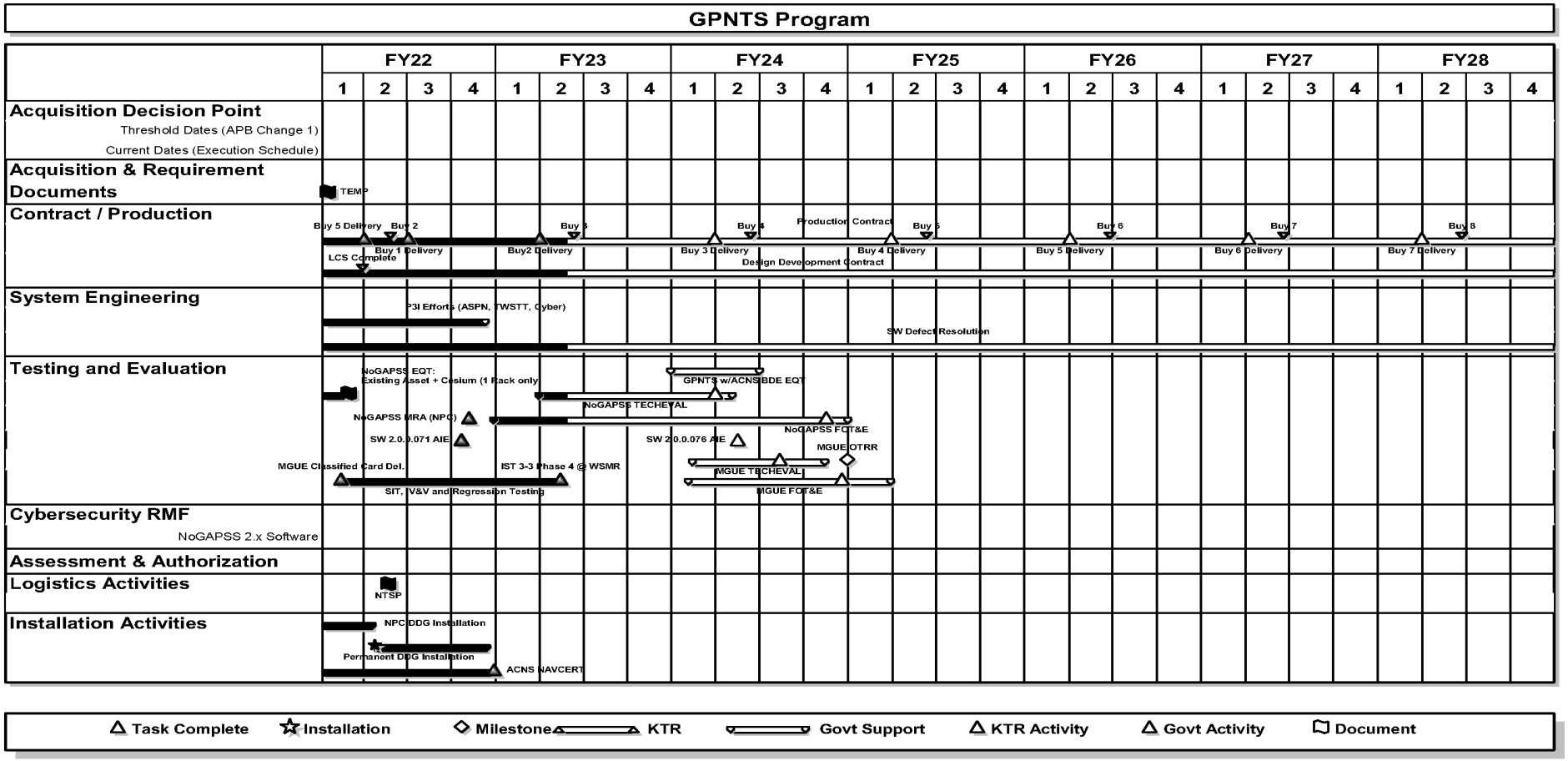

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
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Air Navigation

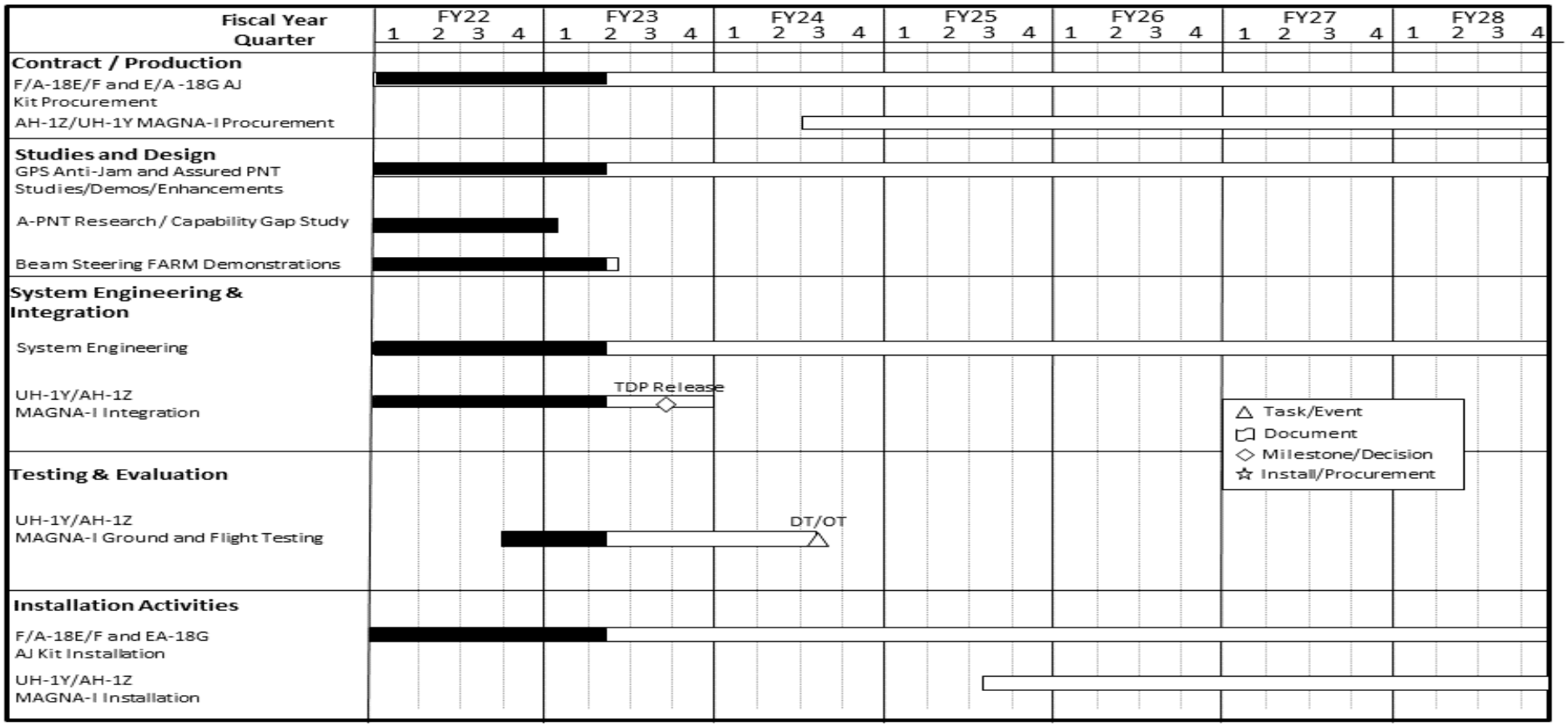

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
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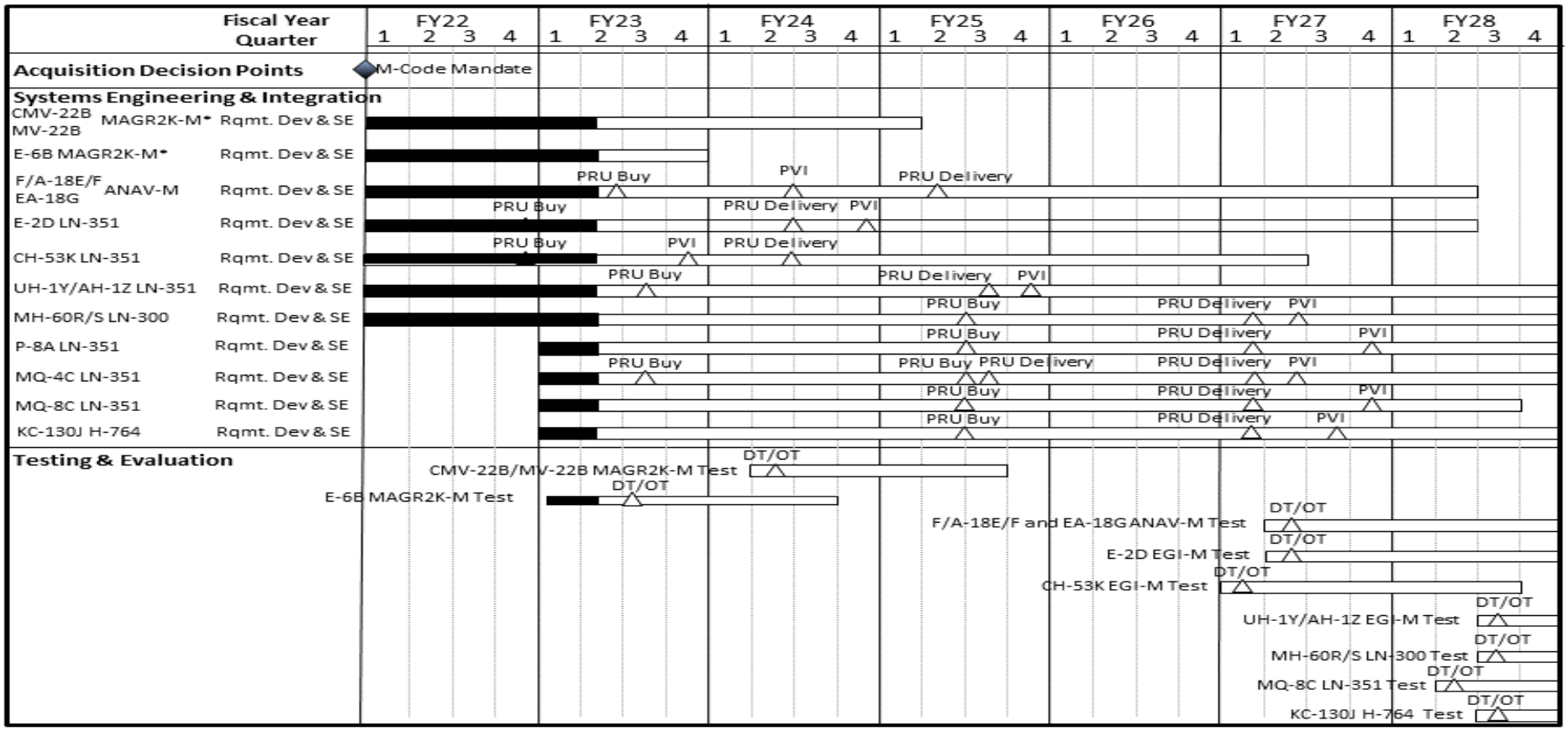
GPS Modernization



- * MAGR-2K-M PRUs were bought in FY17
- **MQ-4C LN-351 PRU Buy in Q3FY23 and Q2FY25

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
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Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 0921				
Sea NAVWAR: Sea Navigation MAGNA Fielding Decision Review	1	2023	1	2023
Sea NAVWAR: Sea Navigation OE-538B Fielding Decision	1	2023	1	2023
Sea NAVWAR: Sea Navigation ADAP 10 Year Production Contract	1	2022	4	2028
Sea NAVWAR: Sea Navigation ADAP Production Contract Award (FY22)	2	2022	2	2022
Sea NAVWAR: Sea Navigation ADAP Production Contract Award (FY23)	2	2023	2	2023
Sea NAVWAR: Sea Navigation ADAP Production Contract Award (FY24)	2	2024	2	2024
Sea NAVWAR: Sea Navigation ADAP Production Contract Award (FY25)	2	2025	2	2025
Sea NAVWAR: Sea Navigation ADAP Production Contract Award (FY26)	2	2026	2	2026
Sea NAVWAR: Sea Navigation ADAP Production Contract Award (FY27)	2	2027	2	2027
Sea NAVWAR: Sea Navigation ADAP Production Contract Award (FY28)	2	2028	2	2028
Sea NAVWAR: Sea Navigation SWaP-C Integration Studies	1	2022	4	2022
Sea NAVWAR: Sea Navigation MAPS/DAPS Integration	1	2023	4	2024
Sea NAVWAR: Sea Navigation ADAP Enhancement Studies	4	2022	4	2027
Sea NAVWAR: Sea Navigation OE-538B (SAGE) Test Readiness Review (TRR)	2	2022	2	2022
Sea NAVWAR: Sea Navigation OE-538B (SAGE) Development & Operational Test (DT/OT)	2	2022	2	2022
Sea NAVWAR: Sea Navigation ADAP Installations	1	2022	4	2027
GPS-based PNT Service (GPNTS): GPNTS TEMP	1	2022	1	2022
GPS-based PNT Service (GPNTS): GPNTS Follow On Production Contract (FRP)	1	2022	4	2028
GPS-based PNT Service (GPNTS): GPNTS Buy 2 (FRP)	2	2022	2	2022
GPS-based PNT Service (GPNTS): GPNTS Buy 3 (FRP)	2	2023	2	2023

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604280N / *JT TACTICAL RADIO SYSTEM (JTRS)*	**Project (Number/Name)** 0921 / *NAVSTAR GPS Equipment*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
GPS-based PNT Service (GPNTS): GPNTS Buy 4 (FRP)	2	2024	2	2024
GPS-based PNT Service (GPNTS): GPNTS Buy 5 (FRP)	2	2025	2	2025
GPS-based PNT Service (GPNTS): GPNTS Buy 6 (FRP)	2	2026	2	2026
GPS-based PNT Service (GPNTS): GPNTS Buy 7 (FRP)	2	2027	2	2027
GPS-based PNT Service (GPNTS): GPNTS Buy 8 (FRP)	2	2028	2	2028
GPS-based PNT Service (GPNTS): GPNTS Design Development Contract	1	2022	4	2028
GPS-based PNT Service (GPNTS): LCS Complete	1	2022	1	2022
GPS-based PNT Service (GPNTS): GPNTS P3I Efforts	1	2022	4	2022
GPS-based PNT Service (GPNTS): GPNTS SW Defect Resolution	1	2022	4	2028
GPS-based PNT Service (GPNTS): GPNTS NoGAPSS EQT	1	2022	1	2022
GPS-based PNT Service (GPNTS): GPNTS NoGAPSS MRA (NPC)	4	2022	4	2022
GPS-based PNT Service (GPNTS): GPNTS SW 2.0.0.071 AIE	4	2022	4	2022
GPS-based PNT Service (GPNTS): GPNTS SW 2.0.0.076 AIE	2	2024	2	2024
GPS-based PNT Service (GPNTS): GPNTS w/ ACNS BOE EQT	1	2024	2	2024
GPS-based PNT Service (GPNTS): GPNTS NoGAPPS TECH EVAL	2	2023	2	2024
GPS-based PNT Service (GPNTS): GPNTS NoGAPPS FOT&E	4	2022	4	2024
GPS-based PNT Service (GPNTS): GPNTS MGUE TECH EVAL	1	2024	4	2024
GPS-based PNT Service (GPNTS): GPNTS MGUE OTRR	4	2024	4	2024
GPS-based PNT Service (GPNTS): GPNTS MGUE FOT&E	1	2024	1	2025
GPS-based PNT Service (GPNTS): GPNTS MGUE SIT, IV&V and Regression Testing	1	2022	2	2023
GPS-based PNT Service (GPNTS): GPNTS MGUE Classified Card Delivery	1	2022	1	2022
GPS-based PNT Service (GPNTS): GPNTS MGUE IST 3-3 Phase 4 @ WSMR	2	2023	2	2023
GPS-based PNT Service (GPNTS): GPNTS NTSP	2	2022	2	2022
GPS-based PNT Service (GPNTS): GPNTS NPC DDG Installation	1	2022	1	2022
GPS-based PNT Service (GPNTS): GPNTS Permanent DDG Installation	2	2022	4	2022

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604280N / *JT TACTICAL RADIO SYSTEM (JTRS)*	**Project (Number/Name)** 0921 / *NAVSTAR GPS Equipment*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
GPS-based PNT Service (GPNTS): GPNTS ACNS Installation and Checkout	1	2022	4	2022
GPS-based PNT Service (GPNTS): GPNTS ACNS NAVCERT	4	2022	4	2022
Air NAVWAR: Air Navigation F/A-18E/F & E/A-18G AJ Kit Procurement Contract	1	2022	4	2028
Air NAVWAR: Air Navigation UH-1Y/AH-1Z AJ MAGNA-I Procurement Contract	3	2024	4	2028
Air NAVWAR: Air Navigation GPS Anti-Jam and Assured PNT Studies/Demos/ Enhancements	1	2022	4	2028
Air NAVWAR: Air Navigation Aviation A-PNT Market Research/Capability Gap	1	2022	1	2023
Air NAVWAR: Air Navigation FARM Demonstrations	1	2022	2	2023
Air NAVWAR: Air Navigation System Engineering	1	2022	4	2028
Air NAVWAR: Air Navigation UH-1Y/AH-1Z MAGNA-I Integration	1	2022	4	2023
Air NAVWAR: Air Navigation UH-1Y/AH-1Z MAGNA-I Integration TDP Release	3	2023	3	2023
Air NAVWAR: Air Navigation UH-1Y/AH-1Z MAGNA-I Ground and Flight Testing	3	2022	3	2024
Air NAVWAR: Air Navigation UH-1Y/AH-1Z MAGNA-I DT/OT	3	2024	3	2024
Air NAVWAR: Air Navigation Installation of F/A-18E/F & EA-18G Kits	1	2022	4	2028
Air NAVWAR: Air Navigation Installation MAGNA-I on UH-1Y/AH-1Z	3	2025	4	2028
GPS Modernization: GPS Modernization M-Code Mandate	1	2022	1	2022
GPS Modernization: GPS Modernization CMV-22B/MV-22B MAGR2K-M Rqmt. Dev & SE	1	2022	1	2025
GPS Modernization: GPS Modernization E-6B Rqmt Dev & SE	1	2022	4	2023
GPS Modernization: GPS Modernization F/A-18E/F & EA-18G ANAV-M Rqmt. Dev & SE	1	2022	2	2028
GPS Modernization: GPS Modernization F/A-18E/F & EA-18G ANAV-M PVI	2	2024	2	2024
GPS Modernization: GPS Modernization F/A-18E/F & EA-18G ANAV-M PRU Buy	2	2023	2	2023
GPS Modernization: GPS Modernization F/A-18E/F & EA-18G ANAV-M PRU Delivery	2	2025	2	2025
GPS Modernization: GPS Modernization E-2D LN-351 Rqmt. Dev & SE	1	2022	2	2028
GPS Modernization: GPS Modernization E-2D LN-351 PRU Buy	4	2022	4	2022

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604280N / *JT TACTICAL RADIO SYSTEM (JTRS)*	**Project (Number/Name)** 0921 / *NAVSTAR GPS Equipment*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
GPS Modernization: GPS Modernization E-2D LN-351 PRU Delivery	2	2024	2	2024
GPS Modernization: GPS Modernization E-2D LN-351 PVI	4	2024	4	2024
GPS Modernization: GPS Modernization CH-53K LN-351 Rqmt. Dev & SE	1	2022	2	2027
GPS Modernization: GPS Modernization CH-53K LN-351 PRU Buy	4	2022	4	2022
GPS Modernization: GPS Modernization CH-53K LN-351 PRU Delivery	2	2024	2	2024
GPS Modernization: GPS Modernization CH-53K LN-351 PVI	4	2023	4	2023
GPS Modernization: GPS Modernization UH-1Y/AH-1Z LN-351 Rqmt Dev & SE	1	2022	4	2028
GPS Modernization: GPS Modernization UH-1Y/AH-1Z LN-351 PRU Buy	3	2023	3	2023
GPS Modernization: GPS Modernization UH-1Y/AH-1Z LN-351 PRU Delivery	3	2025	3	2025
GPS Modernization: GPS Modernization UH-1Y/AH-1Z LN-351 PVI	4	2025	4	2025
GPS Modernization: GPS Modernization MH-60R/S LN-300 Rqmt Dev & SE	1	2022	4	2028
GPS Modernization: GPS Modernization MH-60R/S LN-300 PRU Buy	3	2025	3	2025
GPS Modernization: GPS Modernization MH-60R/S LN-300 PRU Delivery	1	2027	1	2027
GPS Modernization: GPS Modernization MH-60R/S LN-300 PVI	2	2027	2	2027
GPS Modernization: GPS Modernization P-8A LN-351 Rqmt Dev & SE	1	2023	4	2028
GPS Modernization: GPS Modernization P-8A LN-351 PRU Buy	3	2025	3	2025
GPS Modernization: GPS Modernization P-8A LN-351 PRU Delivery	1	2027	1	2027
GPS Modernization: GPS Modernization P-8A LN-351 PVI	4	2027	4	2027
GPS Modernization: GPS Modernization MQ-4C LN-351 Rqmt Dev & SE	1	2023	4	2028
GPS Modernization: GPS Modernization MQ-4C LN-351 PRU Buy	3	2023	3	2023
GPS Modernization: GPS Modernization MQ-4C LN-351 PRU Delivery	3	2025	3	2025
GPS Modernization: GPS Modernization MQ-4C LN-351 PRU Buy	2	2025	2	2025
GPS Modernization: GPS Modernization MQ-4C LN-351 PRU Delivery	1	2027	1	2027
GPS Modernization: GPS Modernization MQ-4C LN-351 PVI	2	2027	2	2027
GPS Modernization: GPS Modernization MQ-8C LN-351 Rqmt Dev & SE	1	2023	3	2028

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604280N / *JT TACTICAL RADIO SYSTEM (JTRS)*	**Project (Number/Name)** 0921 / *NAVSTAR GPS Equipment*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
GPS Modernization: GPS Modernization MQ-8C LN-351 PRU Buy	3	2025	3	2025
GPS Modernization: GPS Modernization MQ-8C LN-351 PRU Delivery	1	2027	1	2027
GPS Modernization: GPS Modernization MQ-8C LN-351 PVI	4	2027	4	2027
GPS Modernization: GPS Modernization KC-130J H-764 Rqmt Dev & SE	1	2023	4	2028
GPS Modernization: GPS Modernization KC-130J H-764 PRU Buy	3	2025	3	2025
GPS Modernization: GPS Modernization KC-130J H-764 PRU Delivery	1	2027	1	2027
GPS Modernization: GPS Modernization KC-130J H-764 PVI	3	2027	3	2027
GPS Modernization: GPS Modernization CMV-22B/MV-22B MAGR2K-M Test	2	2024	3	2025
GPS Modernization: GPS Modernization CMV-22B/MV-22B MAGR2K-M DT/OT	2	2024	2	2024
GPS Modernization: GPS Modernization F/A-18E/F & EA-18G ANAV-M Test	2	2027	4	2028
GPS Modernization: GPS Modernization F/A-18E/F & EA-18G ANAV-M DT/OT	2	2027	2	2027
GPS Modernization: GPS Modernization E-2D EGI-M Test	2	2027	4	2028
GPS Modernization: GPS Modernization E-2D EGI-M DT/OT	2	2027	2	2027
GPS Modernization: GPS Modernization CH-53K EGI-M Test	1	2027	3	2028
GPS Modernization: GPS Modernization CH-53K EGI-M DT/OT	1	2027	1	2027
GPS Modernization: GPS Modernization UH-1Y/AH-1Z EGI-M Test	3	2028	4	2028
GPS Modernization: GPS Modernization UH-1Y/AH-1Z EGI-M DT/OT	3	2028	3	2028
GPS Modernization: GPS Modernization MH-60R/S LN-300 Test	3	2028	4	2028
GPS Modernization: GPS Modernization MH-60R/S LN-300 DT/OT	3	2028	3	2028
GPS Modernization: GPS Modernization MQ-8C LN-351 Test	2	2028	4	2028
GPS Modernization: GPS Modernization MQ-8C LN-351 DT/OT	2	2028	2	2028
GPS Modernization: GPS Modernization KC-130J H-764 Test	3	2028	4	2028
GPS Modernization: GPS Modernization KC-130J H-764 DT/OT	3	2028	3	2028
GPS Modernization: GPS Modernization E-6B MAGR2K-M Test	1	2023	3	2024
GPS Modernization: GPS Modernization E-6B MAGR2K-M DT/OT	3	2023	3	2023

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604280N / *JT TACTICAL RADIO SYSTEM (JTRS)*	Project (Number/Name) 1411 / *Sub Tact Comm System*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
1411: *Sub Tact Comm System*	26.722	13.259	14.274	17.043	-	17.043	14.680	14.867	15.085	15.391	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The details of Program Element 0604280N, Project 1411 are classified SECRET//NOFORN and are submitted to Congress in the classified budget justification books. The details of S3S within project 1411 are classified.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Common Submarine Radio Room (CSRR)	10.195	10.743	13.963	0.000	13.963
Articles:	-	-	-	-	-
FY 2023 Plans: The details of Program Element 0604280N, Project 1411 are classified SECRET//NOFORN and are submitted to Congress in the classified budget justification books.					
FY 2024 Base Plans: The details of Program Element 0604280N, Project 1411 are classified SECRET//NOFORN and are submitted to Congress in the classified budget justification books.					
FY 2024 OCO Plans: N/A					
FY 2023 to FY 2024 Increase/Decrease Statement: The details of Program Element 0604280N, Project 1411 are classified SECRET//NOFORN and are submitted to Congress in the classified budget justification books.					
Title: Link 16	3.064	3.223	3.080	0.000	3.080
Articles:	-	-	-	-	-
FY 2023 Plans: The details of Program Element 0604280N, Project 1411 are classified SECRET//NOFORN and are submitted to Congress in the classified budget justification books.					
FY 2024 Base Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604280N / *JT TACTICAL RADIO SYSTEM (JTRS)*	**Project (Number/Name)** 1411 / *Sub Tact Comm System*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
The details of Program Element 0604280N, Project 1411 are classified SECRET//NOFORN and are submitted to Congress in the classified budget justification books. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** The details of Program Element 0604280N, Project 1411 are classified SECRET//NOFORN and are submitted to Congress in the classified budget justification books.					
Title: S3S ***Articles:*** ***Description:*** Detailed information available at a higher classification. ***FY 2023 Plans:*** The details of Program Element 0604280N, Project 1411 are classified SECRET//NOFORN and are submitted to Congress in the classified budget justification books. ***FY 2024 Base Plans:*** N/A ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** The details of Program Element 0604280N, Project 1411 are classified SECRET//NOFORN and are submitted to Congress in the classified budget justification books.	0.000 -	0.308 -	0.000 -	0.000 -	0.000 -
Accomplishments/Planned Programs Subtotals	13.259	14.274	17.043	0.000	17.043

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• OPN/3130: *Submarine Communication Equipment*	64.642	74.569	82.378	-	82.378	81.531	81.629	82.258	83.905	Continuing	Continuing

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604280N / *JT TACTICAL RADIO SYSTEM (JTRS)*	**Project (Number/Name)** 1411 / *Sub Tact Comm System*

D. Acquisition Strategy

The details of Program Element 0604280N, Project 1411 are classified SECRET//NOFORN and are submitted to Congress in the classified budget justification books.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604280N / *JT TACTICAL RADIO SYSTEM (JTRS)*	Project (Number/Name) 1411 / *Sub Tact Comm System*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Classified	TBD	Not Specified : Not Specified	19.279	9.892	Dec 2021	9.844	Dec 2022	11.787	Dec 2023	-		11.787	Continuing	Continuing	Continuing
S3S Platform Integration	MIPR	Army/TSMO : Redstone Arsenal, AL	1.713	0.000		0.308	Mar 2023	0.000		-		0.000	0.000	2.021	-
		Subtotal	20.992	9.892		10.152		11.787		-		11.787	Continuing	Continuing	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Classified	TBD	Not Specified : Not Specified	3.587	2.147	Nov 2021	1.858	Nov 2022	3.017	Dec 2023	-		3.017	Continuing	Continuing	Continuing
		Subtotal	3.587	2.147		1.858		3.017		-		3.017	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Operational Test & Evaluation (OT&E)	TBD	Not Specified : Not Specified	0.319	0.230	Nov 2021	1.118	Nov 2022	1.197	Nov 2023	-		1.197	Continuing	Continuing	Continuing
		Subtotal	0.319	0.230		1.118		1.197		-		1.197	Continuing	Continuing	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Classified	TBD	Not Specified : Not Specified	1.824	0.990	Nov 2021	1.146	Nov 2022	1.042	Nov 2023	-		1.042	Continuing	Continuing	Continuing
		Subtotal	1.824	0.990		1.146		1.042		-		1.042	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604280N / *JT TACTICAL RADIO SYSTEM (JTRS)*	Project (Number/Name) 1411 / *Sub Tact Comm System*	

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	26.722	13.259		14.274		17.043		-		17.043	Continuing	Continuing	N/A

Remarks

- The details of Program Element 0604280N, Project 1411 are classified SECRET//NOFORN and are submitted to Congress in the classified budget justification books.

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604280N / *JT TACTICAL RADIO SYSTEM (JTRS)*	**Project (Number/Name)** 1411 / *Sub Tact Comm System*

	FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Proj 1411.L39																												
Classified (Place Holder)	[redacted]																											

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604280N / *JT TACTICAL RADIO SYSTEM (JTRS)*	**Project (Number/Name)** 1411 / *Sub Tact Comm System*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 1411.L39				
Classified (Place Holder)	1	2022	4	2028

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy											Date: March 2023	
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604280N / *JT TACTICAL RADIO SYSTEM (JTRS)*				Project (Number/Name) 2126 / *ATDLS Integration*			
COST ($ in Millions)	**Prior Years**	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Cost To Complete**	**Total Cost**
2126: *ATDLS Integration*	39.342	21.715	32.039	31.874	-	31.874	28.597	23.730	23.916	24.403	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project develops and improves the Navy's Tactical Data Link (TDL) systems. It includes the Advanced Tactical Data Link Systems (ATDLS) Integration Programs, specifically Link 16 Network, Command and Control Processor (C2P) and Link Monitoring and Management Tool (LMMT).

ATDLS Integration Program develops new and improved capabilities for Navy TDL users. The ATDLS Integration Programs perform technical analyses and engineering efforts associated with implementation of new technology to enable rapid introduction of new products and technology, prevent obsolescence, and end of support issues. The programs insert new technology enhancements via incremental software & hardware upgrades and deliver as annual build release. The Navy Link 16 Network Increment II requires Enhanced Throughput (ET), concurrent multi-netting (CMN), current contention receive (CCR), and tactical targeting networking technology (TTNT), and tech refresh with Block Upgrade 3 (BU3). C2P is a critical component of the shipboard combat system enabling tactical data link integration with the combat systems. C2P is a critical component of the Aegis Ballistic Missile Defense (BMD) architecture. C2P Technology Refresh (TR) will modernize obsolete C2P system hardware components and improve C2P system cyber security posture. C2P Modernization (MOD) is a service life extension effort required to sustain C2P system viability and significantly improve its cyber resiliency. C2P MOD modernizes the legacy C2P system software to enable improved cyber resiliency, improved system operational availability and the ability to run in multiple hardware environments. Link 22 development and integration into the C2P allows for improved maritime tactical data link operations with coalition forces. LMMT will upgrade commercial off-the-shelf hardware and modernize software operating systems. LMMT will perform monitoring and management of all TDL and provide information in support of the Integrated Air & Missile Defense (IAMD) and Ballistic Missile Defense (BMD) missions.

Link 16 Network Increment II: (1) Develop modern Joint Tactical Radio System (JTRS) terminals to meet critical mandates, with connectivity to shore sites, ship [Next Generation Command and Control Processor, (NGC2P)], and via Integrated Shipboard Network Systems (ISNS) for Tactical Targeting Networking Technology (TTNT) control, and current Navy Joint Tactical Information Distribution System (JTIDS) airborne platforms; (2) Developmental Testing (DT) / Operational Testing (OT) of Navy platform JTRS modifications and the integration of TTNT; (3) provide product improvement for continued production capability Multifunctional Information Distribution System (MIDS) on Ship (MOS) Modernization (MOS Mod) and extensibility to new Tactical Data Link capabilities of shipboard Link 16 terminals, (4) the development and qualification to replace shipboard Link 16 4400 antenna with the 4557 antenna. JTIDS, MOS, and MOS Mod efforts in support of Joint Chiefs of Staff Joint Requirements Oversight Council Memorandum (JROCM) 075-17 for installation and integration of MIDS J terminals. JROCM 097-20 direction for Crypto Modernization (CM), Frequency Remapping (FR), Enhanced Throughput (ET), concurrent multi-netting (CMN), current contention receive (CCR), and JROC validated MIDS JTRS CPD (DTG). All Link 16 terminals are required to have these capabilities to support Link 16 Interoperability.

FY2024 Justification (Link 16): Integration of the MIDS Program Office (MPO) developed A(v)6 (inclusive of the latest Link 16 baselined unit (BU3), TTNT Transceiver and external power amp) into the MOS and MOS-Mod shipboard cabinet assemblies.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604280N / *JT TACTICAL RADIO SYSTEM (JTRS)*	**Project (Number/Name)** 2126 / *ATDLS Integration*

Command and Control Processor (C2P): The two Research Development Test & Evaluation (RDT&E) initiatives are 1) C2P Technology Refresh (TR) cyber security update and 2) C2P Modernization which now includes Link 22 integration. C2P TR cyber security update is a new initiative driven by recently discovered cyber security risk to the C2P system in support of the BMD mission. The C2P TR Cyber security update is planned to support acceleration on all AEGIS BMD ships. C2P Modernization funds the transition of the C2Ps legacy Compiler Monitor System (CMS-2Y) software code (old Navy unique computer programming language from the 1980s) to a modern software language. Transition to a modern software language is required to sustain the system software, to adequately address growing cybersecurity and operational availability challenges, and to enable more affordable transition to new hardware processing components as a result of commercial of the shelf processor obsolescence. Link 22, which was previously planned for fielding in the C2P TR architecture, has been delayed until the fielding of C2P Modernization. This was based on prioritizing existing resources to address the emergent cyber security risk that has resulted in the C2P TR cybersecurity update plan. Link 22 is a modernized replacement for Link 11, providing beyond line of site (BLOS) tactical data communications using high frequency (HF) radios.

FY2024 Justification (C2P): Implementing the development initiatives above will improve C2P cybersecurity hygiene, provide more reliable hardware, and create a architecture that is more cost effective for future upgrades and corrections to latent defects.

Link Monitoring and Management Tool (LMMT) is a system delivered on commercial off-the-shelf hardware (HW) providing gateway functions for multiple Tactical Data Link (TDL) interface, routing and display of TDL data to include Link 16, Joint Range Extension (JRE) and Link 22. LMMT is also capable of performing TDL network monitoring and management, data forwarding between the TDLs and providing tactical data to the Integrated Air & Missile Defense (IAMD), Ballistic Missile Defense (BMD) network, and Global Command and Control System (GCCS) for establishing the common operational picture. LMMT requirements will be incrementally developed and delivered in capability drops via the Joint Capabilities Integration Development System (JCIDS) IT Box approach.

FY2024 Justification (LMMT): Development and testing required to implement TTNT and Link 16 Concurrent Multi-netting and Concurrent Contention Receive (CMN-4/ CCR) into LMMT for Capability Drop (CD) 4 capabilities.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Link 16 Network Increment II - Cryptographic Modernization (CM) / Frequency Remapping (FR)	1.040	10.596	8.516	0.000	8.516
Articles:	-	-	-	-	-
FY 2023 Plans: Initiates MIDS Program Office (MPO) contract for qualification of MIDS Joint Tactical Radio System (JTRS) BU3 ((Concurrent Multi-Netting (CMN)) terminal with 1553 Platform M (Ship) interface. Evaluates options for higher throughput in the MIDS JTRS to C2P interface. Continues Government Integration efforts of A(v)6 (BU3, TTNT, TEPA) into the Link 16 MOS SCAs. Continues Government development of TTNT Terminal Controller SW coding within C2P. Continues Government Integration efforts of A(v)6 (BU3, TTNT, TEPA) into the Link 16 MOS Mod ECA.					
FY 2024 Base Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604280N / *JT TACTICAL RADIO SYSTEM (JTRS)*	**Project (Number/Name)** 2126 / *ATDLS Integration*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Will complete MPO contract for qualification of MIDS J BU3 (CMN) terminal with 1553 Platform M (Ship) interface. Will continue the MOS SCA and MOS Modernization (MOS Mod) External Cabinet Assembly (ECA) hardware integration with A(v)6. Will continue MOS and MOS Mod terminal controller updates to support integration of MIDS J BU3/TTNT Terminal Controller. LINK 16 will conduct government integration testing of MIDS JTRS, BU3, and TTNT Terminal Controller by C2P and will commence at Sea testing of A(v)6 capability in the shipboard environment. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** $2.08M decrease from FY23 to FY24 is due to the Link 16 Program anticipating down-select to a single vendor performing A(v)6 integration into a MOS Mod cabinet.					
Title: Command and Control Processor (C2P)	18.895	19.331	21.358	0.000	21.358
Articles:	-	-	-	-	-
FY 2023 Plans: Continues C2P Modernization Development, Integration and Systems Engineering. Completes SW Release A IV&V and releases and completes C2P Mod SW Drop B. ***FY 2024 Base Plans:*** Will Continue C2P Mod development, integration and engineering activity. C2P will initiate and complete C2P Mod Capability Build (CB 3) SW Drop and will commence the C2P Pre-Planned Product Improvement Program (P3I) to incorporate additional capability to the C2P Mod SW baseline. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** The $2.027M increase in funding from FY23 to FY24 reflects the commencement of the C2P Pre-Planned Product Improvement Program (P3I) to incorporate additional capability to the C2P Mod SW baseline.					
Title: Link Monitoring and Management Tool (LMMT)	1.780	2.112	2.000	0.000	2.000
Articles:	-	-	-	-	-
FY 2023 Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Consolidates previous capability drops to create a single CD3 version, perform all required testing, and prepare all CD3 engineering and acquisition documents in preparation for Fielding Technical Review (FTR) (Q2 FY23) and Fielding Technical Decision (FDR) (Q3 FY23). ***FY 2024 Base Plans:*** Development and testing required to implement TTNT and Link 16 Concurrent Multi-netting and Concurrent Contention Receive (CMN-4/CCR) into LMMT for CD4 capabilities. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** $0.112M decrease to LMMT from FY23 to FY24 as the program completes CD3 development and begins development of CD4.					
Accomplishments/Planned Programs Subtotals	21.715	32.039	31.874	0.000	31.874

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• OPN/2614: *Adv Tact Data Link Sys (ATDLS)*	100.888	73.675	50.148	-	50.148	70.171	71.108	66.814	74.316	Continuing	Continuing

Remarks

D. Acquisition Strategy

To address the WIN 11 implementation for the MOS and MOS Mod system, a new MOS Terminal Controller hardware and software is being developed, as required. MOS and MOS Mod integrates the MIDS JTRS terminal developed by the MIDS Program Office PMA-101. The MIDS JTRS BU2 terminal is being updated to BU3. In conjunction with the BU3 development, the TTNT capability is also under development and will field with the BU3 and associated Tactical Targeting Networking Technology External Power Amplifier (TEPA) [designated as A(v)6] for shipboard application. The Link 16 program will perform environmental qualification testing (EQT), to include electro-magnetic interference/compatibility (EMI/EMC) in the MOS and MOS Mod cabinets. The program is letting a contract integrating the A(v)6 into a MOS Mod cabinet, to include host-interface updates and integration efforts for shipboard application. The program office is using an organic government organization to integrate the A(v)6 into the MOS cabinet.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604280N / *JT TACTICAL RADIO SYSTEM (JTRS)*	**Project (Number/Name)** 2126 / *ATDLS Integration*

The C2P Technology Refresh (TR) configuration will be replaced by C2P Modernization (MOD). C2P Mod will leverage existing commercial-off-the-shelf (COTS) hardware and be a complete modernization of the C2P software architecture significantly improving system cybersecurity. C2P Mod capabilities are implemented in software and will be developed in capability drops (CDs). C2P Mod development and support will be managed by Naval Information Warfare Center Pacific (NIWC PAC).

The Link Monitoring and Management Tool (LMMT) capability will replace previously-fielded Air Defense Systems Integrator (ADSI) systems. LMMT will leverage existing government-off-the-shelf (GOTS) software and commercial-off-the-shelf (COTS) hardware. LMMT capabilities are implemented primarily in software and will be developed in Capability Drops (CDs). Existing GOTS software will be updated to incorporate network performance monitoring and management capabilities by Naval Information Warfare Center Pacific (NIWC PAC).

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Link 16 Network Technical Design Agents	C/CPFF	SeaPort- Various : San Diego, CA	0.784	0.000		0.525	Apr 2023	1.650	Oct 2023	-		1.650	Continuing	Continuing	Continuing
Link 16 Network Systems Engineering	WR	NIWC PAC : San Diego, CA	1.039	1.040	Apr 2022	2.133	Nov 2022	2.750	Nov 2023	-		2.750	Continuing	Continuing	Continuing
Link 16 Network MIDS J Development and Qualification; TTNT GFE & Software	WR	PMA 101 : San Diego, CA	1.000	0.000		2.000	Jan 2023	0.000		-		0.000	0.000	3.000	-
Link 16 Network JTIDS Development and Qualification	C/CPIF	DLS (BAE/Collins) : Wayne, NJ	0.383	0.000		0.000		0.000		-		0.000	0.000	0.383	-
Link 16 Network ECA/ Shipboard Cabinet Development and Qualification	C/CPFF	TBD : TBD	0.000	0.000		2.898	Apr 2023	2.616	Apr 2024	-		2.616	Continuing	Continuing	Continuing
C2P Systems Engineering	WR	NIWC PAC : San Diego, CA	7.178	2.322	Oct 2021	2.970	Oct 2022	3.286	Oct 2023	-		3.286	Continuing	Continuing	Continuing
C2P IV&V	WR	NIWC PAC : San Diego, CA	0.485	0.451	Oct 2021	0.613	Oct 2022	1.950	Oct 2023	-		1.950	Continuing	Continuing	Continuing
C2P Development & Integration	WR	NIWC PAC : San Diego, CA	17.707	14.550	Oct 2021	14.146	Oct 2022	14.146	Oct 2023	-		14.146	Continuing	Continuing	Continuing
LMMT Development	WR	NIWC PAC : San Diego, CA	1.351	0.350	Oct 2021	0.450	Oct 2022	0.600	Oct 2023	-		0.600	Continuing	Continuing	Continuing
LMMT Systems Engineering	WR	NIWC PAC : San Diego, CA	1.120	0.496	Oct 2021	0.550	Oct 2022	0.450	Oct 2023	-		0.450	Continuing	Continuing	Continuing
LMMT IV&V	WR	NIWC PAC : San Diego, CA	0.718	0.257	Oct 2021	0.352	Oct 2022	0.600	Oct 2023	-		0.600	Continuing	Continuing	Continuing
		Subtotal	31.765	19.466		26.637		28.048		-		28.048	Continuing	Continuing	N/A

Remarks

The FY24 increase of $1.411M in Product Development efforts is the result of a $1.653M increase in C2P for Pre-Planned Product Improvement Program (P3I) to incorporate additional capability to the C2P Mod SW baseline; a $0.540M decrease due to planned FY24 completion of Link 16 Network Multifunctional Information Distribution System (MIDS) Joint Tactical Radio System (JTRS) Development and Qualification and MIDS On Ship (MOS) Shipboard Cabinet Assembly (SCA) and MOS Modernization (Mod)

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604280N / *JT TACTICAL RADIO SYSTEM (JTRS)*	Project (Number/Name) 2126 / *ATDLS Integration*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
External Cabinet Assembly (ECA) hardware integration with MIDS J BU3/TTNT terminal to include TTNT external power amplifier; and a $0.298M increase in LMMT as the program begins development and IV&V of Capability Drop (CD4) in FY24.															

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation (DT&E)	WR	NIWC PAC : San Diego, CA	3.443	0.100	Oct 2021	3.040	Jan 2023	2.076	Oct 2023	-		2.076	Continuing	Continuing	Continuing
Operational Test & Evaluation (OT&E)	WR	OPTEV 4 : Norfolk, VA	0.125	0.157	Oct 2021	0.250	Oct 2022	0.000		-		0.000	Continuing	Continuing	Continuing
		Subtotal	3.568	0.257		3.290		2.076		-		2.076	Continuing	Continuing	N/A

Remarks

The FY24 decrease of $1.214M in Test and Evaluation efforts is comprised of: The decrease of $0.964M in Development Test and Evaluation (DT&E) initiatives that resulted from a $1.540M decrease in Link 16, as vendor qualification and government integration testing of the Multifunctional Information Distribution System Joint Tactical Radio System (MIDS JTRS (MIDS J)) Block Upgrade 3 (BU3) terminal with shipboard 1553 interface into MIDS On Ship (MOS) Shipboard Cabinet Assembly (SCA) and MOS Mod External Cabinet Assembly (ECA) completes in FY24; a $0.326 increase in C2P, as the planning initiates for the FY25 DT&E event and that funds C2P Mod cybersecurity testing to detect any technical vulnerabilities that may affect functional mission execution and operational resilience; and a $0.250M increase in LMMT as the system begins conducting development testing for CD4. The $0.250M decrease of Operation Test & Evaluation (OT&E) efforts is the result the completion of CD3 rollout.

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Link 16 Network Program Management Support	C/CPFF	SeaPort- Various : San Diego, CA	0.139	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
C2P Program Management Support	C/CPFF	SeaPort- Various : San Diego, CA	1.491	0.786	Oct 2021	0.801	Oct 2022	0.825	Oct 2023	-		0.825	Continuing	Continuing	Continuing
C2P Systems Engineering Support	C/CPFF	SeaPort- Various : San Diego, CA	1.491	0.786	Oct 2021	0.801	Oct 2022	0.825	Oct 2023	-		0.825	Continuing	Continuing	Continuing
LMMT Program Management	C/CPFF	SeaPort- Various : San Diego, CA	0.888	0.420	Oct 2021	0.510	Oct 2022	0.100	Oct 2023	-		0.100	0.000	1.918	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604280N / *JT TACTICAL RADIO SYSTEM (JTRS)*	**Project (Number/Name)** 2126 / *ATDLS Integration*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	4.009	1.992		2.112		1.750		-		1.750	Continuing	Continuing	N/A

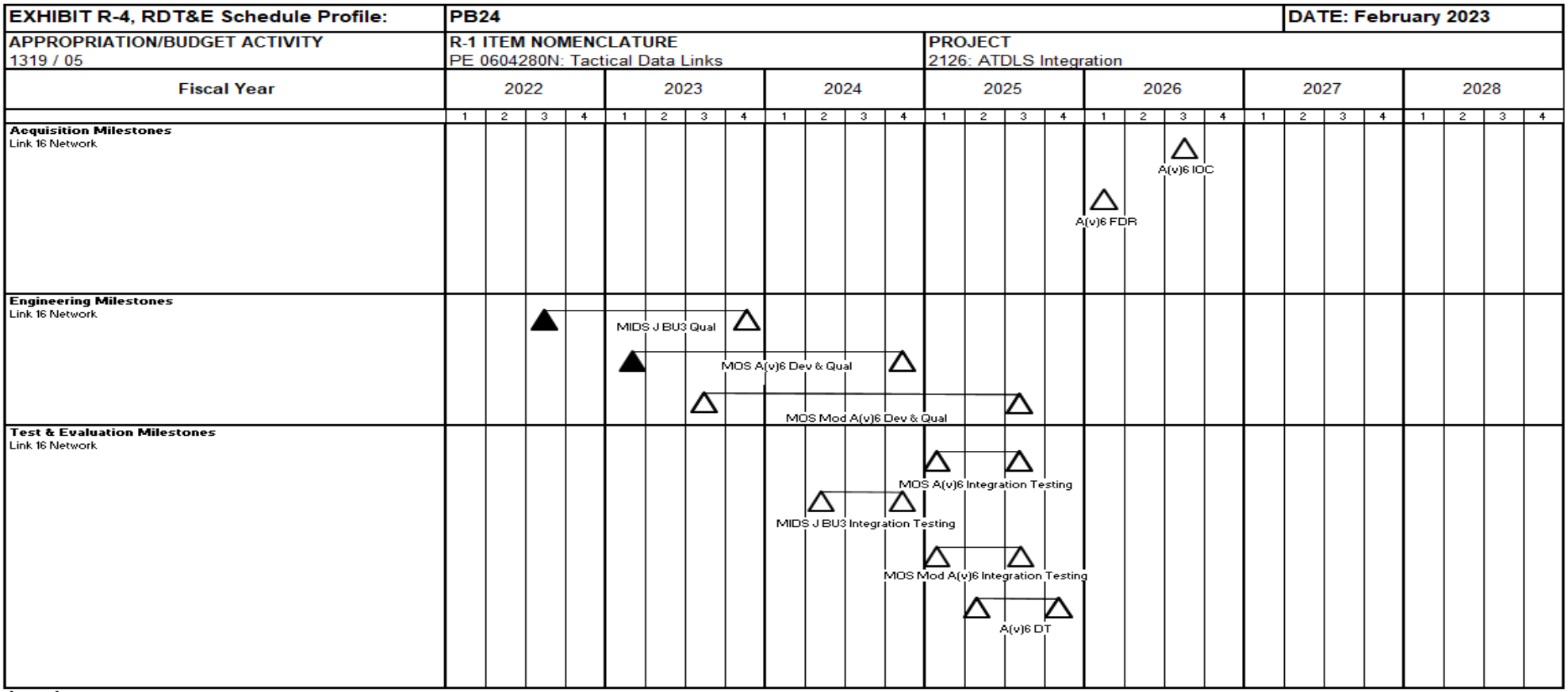
	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	39.342	21.715		32.039		31.874		-		31.874	Continuing	Continuing	N/A

Remarks

The FY24 decrease of $0.165M in R-3 Total Area is the result of a $2.027M total increase in Product Development, Test and Evaluation, Management Services efforts for C2P; a $2.080M total decrease in Product Development and Test and Evaluation efforts for Link 16; and a $0.112M decrease in Product Development, Test and Evaluation efforts and Management Services efforts for LMMT.

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604280N / *JT TACTICAL RADIO SYSTEM (JTRS)*	**Project (Number/Name)** 2126 / *ATDLS Integration*

EXHIBIT R-4, RDT&E Schedule Profile:	PB24	DATE: February 2023
APPROPRIATION/BUDGET ACTIVITY 1319 / 05	R-1 ITEM NOMENCLATURE PE 0604280N: Tactical Data Links	PROJECT 2126: ATDLS Integration

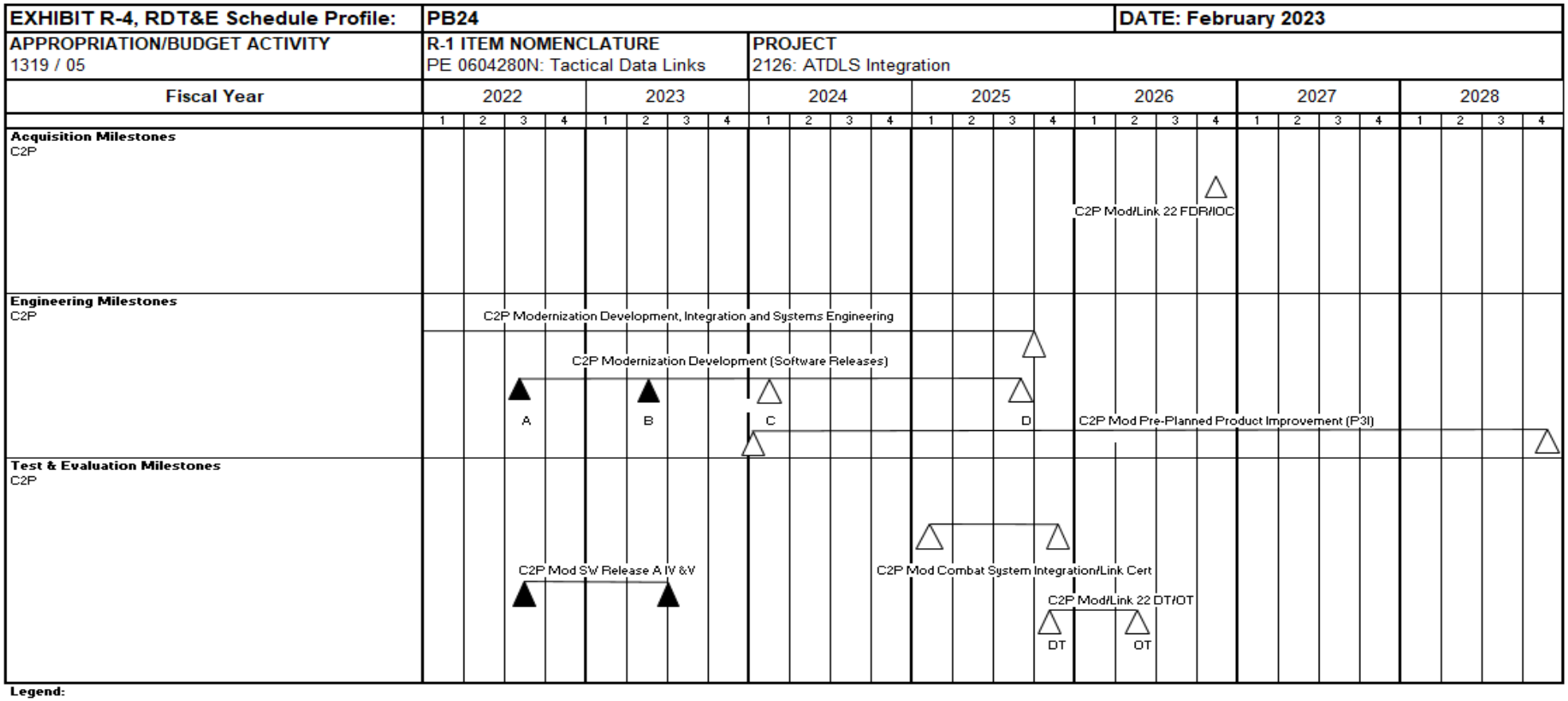


Legend:

CM - Cryptographic Modernization
DT- Developmental Test
FDR - Fielding Decision Review
FR - Frequency Remapping
IOC - Initial Operating Capability
IT - Integrated Test
MOS - MIDS On Ship
TTNT - Tactical Targeting Networking Technology
V6A - BU3, TTNT, TEPA

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604280N / *JT TACTICAL RADIO SYSTEM (JTRS)*	**Project (Number/Name)** 2126 / *ATDLS Integration*

EXHIBIT R-4, RDT&E Schedule Profile:	PB24	DATE: February 2023
APPROPRIATION/BUDGET ACTIVITY 1319 / 05	R-1 ITEM NOMENCLATURE PE 0604280N: Tactical Data Links	PROJECT 2126: ATDLS Integration



Legend:

C2P - Command and Control Processor
DT - Developmental Test
FDR - Fielding Decision Review
IOC - Initial Operating Capability
IV&V - Independent Verificaiton and Validation
OT - Operational Test
P3I - Pre-Planned Product Improvement

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604280N / *JT TACTICAL RADIO SYSTEM (JTRS)*	**Project (Number/Name)** 2126 / *ATDLS Integration*

EXHIBIT R-4, RDT&E Schedule Profile:	PB24																DATE: February 2023							
APPROPRIATION/BUDGET ACTIVITY 1319 / 05	R-1 ITEM NOMENCLATURE PE 0604280N: Tactical Data Links								PROJECT 2126: ATDLS Integration															
Fiscal Year	2022				2023				2024				2025				2026				2027				2028			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Acquisition Milestones LMMT				CD3 OTRR			CD3 ACT	CD3 FDR CD4 BD						CD4 OTRR					CD4 ACT	CD4 FDR								
Engineering Milestones LMMT					CD3 Production Release		CD3 FTR			CD4 IV&V								CD4 Production Release		CD4 FTR								
Test & Evaluation Milestones LMMT		CD3 DT		CD3 OT								CD4 DT			CD4 OT													

Legend:

ACT - Acquisition Coordination Team
CD - Capability Drop
DT - Developmental Test
FDR - Fielding Decision Review
FTR - Fielding Technical Review
OT - Operational Test
OTRR - Operational Test Readiness Review

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604280N / *JT TACTICAL RADIO SYSTEM (JTRS)*	**Project (Number/Name)** 2126 / *ATDLS Integration*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 2126				
Link 16 MIDS J BU3 Qual	3	2022	4	2023
Link 16 MOS A(v)6 Dev & Qual	1	2023	4	2024
Link 16 MOS Mod A(v)6 Dev & Qual	3	2023	3	2025
Link 16 MIDS J BU3 Integration Testing	2	2024	4	2024
Link 16 MOS A(v)6 Integration Testing	1	2025	3	2025
Link 16 MOS Mod A(v)6 Integration Testing	1	2025	3	2025
Link 16 A(v)6 DT	2	2025	4	2025
Link 16 A(v)6 FDR	1	2026	1	2026
Link 16 A(v)6 IOC	3	2026	3	2026
C2P Modernization Development, Integration and Systems Engineering	1	2022	3	2025
C2P Mod SW Release A IV&V	3	2022	2	2023
C2P Mod Software Release A	3	2022	3	2022
C2P Mod Software Release B	2	2023	2	2023
C2P Mod Software Release C	1	2024	1	2024
C2P Mod Software Release D	3	2025	3	2025
C2P Mod Combat Systems integration/Link 22 certification	1	2025	4	2025
C2P Mod/Link 22 DT/OT	4	2025	2	2026
C2P Mod/Link 22 FDR/IOC	4	2026	4	2026
C2P Mod P3I	1	2024	4	2028
LMMT CD3 DT	2	2022	2	2022
LMMT CD3 OTRR	4	2022	4	2022

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604280N / *JT TACTICAL RADIO SYSTEM (JTRS)*	**Project (Number/Name)** 2126 / *ATDLS Integration*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
LMMT CD3 OT	4	2022	4	2022
LMMT CD3 Production Release	1	2023	1	2023
LMMT CD3 FTR	3	2023	3	2023
LMMT CD3 ACT	3	2023	3	2023
LMMT CD3 FDR	4	2023	4	2023
LMMT CD4 BD	4	2023	4	2023
LMMT CD4 IV&V	2	2024	2	2024
LMMT CD4 DT	4	2024	4	2024
LMMT CD4 OTRR	2	2025	2	2025
LMMT CD4 OT	3	2025	3	2025
LMMT CD4 Production Release	1	2026	1	2026
LMMT CD4 FTR	3	2026	3	2026
LMMT CD4 ACT	3	2026	3	2026
LMMT CD4 FDR	4	2026	4	2026

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy											Date: March 2023	
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604280N / *JT TACTICAL RADIO SYSTEM (JTRS)*				Project (Number/Name) 3020 / *MIDS/JTRS*			
COST ($ in Millions)	**Prior Years**	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Cost To Complete**	**Total Cost**
3020: *MIDS/JTRS*	118.527	63.855	82.429	149.068	-	149.068	159.977	139.780	92.775	60.416	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Project MDAP/MAIS Code: 554

A. Mission Description and Budget Item Justification

The Multifunctional Information Distribution System (MIDS) program office is the Performing Activity in the Navy (Lead Service for Department of Defense (DOD)) Link 16 capability and consists of two (2) product lines, MIDS Low Volume Terminal (LVT) (legacy hardware defined radio) and MIDS Joint Tactical Radio System (JTRS) (software (SW) defined radio). MIDS-LVT effort is a cooperative development program between France, Germany, Italy, Spain, and the United States with United States joint service participation (Navy, Army, Air Force), and has provided over 11,000 terminals to 48 Nations providing interoperability with North Atlantic Treaty Organization (NATO) and coalition partners. The Department of Defense (DoD) established the program to design, develop, and deliver low volume, lightweight tactical information system terminals for U.S. and allied fighter aircraft, bombers, helicopters, ships, and ground sites. MIDS-LVT significantly increases force effectiveness and minimizes hostile actions and friend-on-friend engagements. MIDS-LVT Block Upgrade 2 was executed as an ECP and provides the critical upgrades to the MIDS-LVT Terminal to enable U.S., Coalition and International partners' ability to meet the National Security Agency (NSA) mandated timelines for Cryptographic Modernization (CM) and the National Telecommunications and Information Agency (NTIA) and Federal Aviation Agency (FAA) mandated timelines for Frequency Remapping (FR).

MIDS JTRS, designed as a Pre-Planned Product Improvement (P3I) and executed as an Engineering Change Proposal (ECP) to the production MIDS-LVT configuration, and is fully compatible with MIDS-LVT. The MIDS JTRS Core Terminal achieved Full Production & Fielding (FP&F) in March 2012. It facilitated the JTRS incremental approach for fielding advanced JTRS transformational networking capability and transformed the MIDS-LVT into a 4-channel, SW Communications Architecture (SCA) compliant, Joint Tactical Radio. A form-fit-function replacement to MIDS-LVT, MIDS JTRS also adds three programmable 2 Megahertz (MHz) to 2 Gigahertz (GHz) channels capable of hosting the JTRS legacy and networking waveforms. In addition to Link 16, Tactical Air Navigation (TACAN), and voice functionality found in MIDS-LVT, MIDS JTRS has four channels and adds capabilities such as Link 16 Enhanced Throughput (ET), Link 16 FR, SW programmability, CM, and Four Net Concurrent Multi-Netting with Concurrent Contention Receive (CMN-4).

MIDS JTRS Tactical Targeting Network Technology (TTNT), is a block upgrade to the MIDS JTRS CMN-4 Terminal providing an Internet Protocol-based networking capability on tactical aircraft. TTNT is a low latency, high throughput waveform that has the capability to support data exchange between fast-moving tactical aircraft, weapons, and unmanned aircraft, in addition to air, land, and sea-based command and control nodes, in a variety of air-to-air and air-to-ground missions including time sensitive targeting, air warfare, close air support, non-traditional ISR, and anti-surface warfare. TTNT and MIDS JTRS CMN-4 directly supports Naval Integrated Fire Control (NIFC) capability requirements. These capabilities provide Joint Airborne Network-Tactical Edge functionality to run advanced mission applications in a cross-platform/cross-domain tactical network enterprise.

Currently when updated software or any bug fixes are available, the warfighter must return the terminal to the vendor and pay for the labor to install the latest software push. With the new Field Loadable capability, the vendors will update the terminal's software to allow the warfighter to use the front panel of the terminal to load the

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latest software build in the field. The Field Loadable capability entails updating and rewriting the specifications documents for the front panel, new software to enable users in the field to push updates and retrofitting government furnished equipment for use in the new testing environments.

The FY 2024 Budget completes the first software release (Block Cycle 1) for the MIDS Modernization Software and Firmware development and awards the next software release (Block Cycle 2). It completes the MIDS JTRS enhancements and begins lab and flight testing for the efforts in developmental and operational testing environments. The FY 2024 budget also supports the lead service core waveform development requirements for developing a reference implementation platform for prototyping and conducting frequency testing for the Link 16 and TTNT waveforms.

The FY 2024 Budget continues to fund critical warfighter improvements to the TTNT Terminal Software and Waveform in order to out pace the threat. The TTNT J-series messages Over IP Networks (JOIN) effort enters into testing. It completes the development of the TTNT Consolidated Automated Support System (CASS) Test Program Sets (TPS). New TTNT enhancements development continues in FY2024 adding classified capabilities to the terminal.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: MIDS	63.855	82.429	149.068	0.000	149.068
Articles:	-	-	-	-	-
FY 2023 Plans: Continue MIDS Modernization Software/Firmware (SW/FW) development for the MIDS JTRS terminal enhancements. Industry will finalize the specification requirements, hold technical reviews with the Government, continue SW/FW development, prepare for system I&T and conduct dry run testing. Modify the contract to incorporate the MIDS JTRS TTNT J-series messages Over IP Networks (JOIN) and Dynamic Link Exchange Protocol (DLEP) technologies into the new Block Cycle 1 software release. Continue Electromagnetic Compatibility (EMC) Features testing on previous MIDS JTRS software releases and the newly developed Link 16 modernized hardware. Begin MIDS JTRS CMN-4 enhancements by investigating options for machine to machine interface (MMI) software download capability and user authentication to comply with terminal security requirements. Identify any impacts to the Functional and Allocated baselines. Develop and test a prototype MMI SW download capability. Begin MMI software download development and qualification for multiple terminal configurations. Test new crypto capabilities with the new software development. Continue the development/build of MIDS test equipment for a new government depot/test lab and the support for the depot/lab. Test and accept a new Test Bench for the new depot. Create test procedures for the newly developed Test Bench for depot.					

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Continue TTNT waveform changes and capability gap improvements with new Integrated Builds (IB) of Software drops to include IP applications and J-series messages Over IP Networks (JOIN) to provide enhanced networking capability. Industry will review performance metrics and impacts to the software and firmware while meeting the Cross Domain system requirements in order to implement JOIN. Industry will develop a method to filter message types and ensure they can be sent over both waveforms. Perform JOIN tests internal to the MIDS JTRS TTNT Terminal and test a TTNT Ethernet Channel method. Document the two methods' success rates, loads on the systems, waveform and power amplifier. Update software and firmware to incorporate JOIN into the MIDS JTRS TTNT terminal and release prototype on the current MIDS JTRS TTNT terminal. Begin merging/ incorporating JOIN with MIDS Modernization, the new Link 16 hardware and front panel loading capability for MIDS JTRS TTNT via Block Cycle 1 contract modification. Develop software enhancements to allow MIDS JTRS TTNT to use the Dynamic Link Exchange Protocol (DLEP). Industry will update software and firmware in order for TTNT to make routing decisions and share information externally to enable Coms as a service. Conduct Dry Run testing on the DLEP capability. Continue to integrate into the MIDS JTRS TTNT terminal different solutions from Federally Funded Research and Development Centers and Small Business that provide capability and improvements to terminal performance. Begin the risk reduction for the design and development for Mission Optimized Waveform (MOW) software, firmware and waveform updates in MIDS JTRS TTNT. This includes writing the spec development; these capabilities are classified. Continue to correct and implement JTRS problem reports (JPR) fixes into the terminals that come out of Operational Testing from the platforms. Continue the TTNT System of Systems (SoS) Modeling, Simulation, and Analysis (MS&A) effort by incorporating platform simulators, applications, and networks modeling to optimize the TTNT networks for increased warfighter capacity and capability. Use Modeling and Simulation to test the JOIN, DLEP and MOW. Continue the Consolidated Automated Support System (CASS) Test Program Sets (TPS) efforts for the MIDS JTRS TTNT terminal. Complete design and testing of the CASS TPS; build and test the three prototypes for qualification testing. Continue to support demonstrations, testing and exercises utilizing TTNT terminals and networks including Northern Edge 23 (NE23), Naval Tactical Grid enablers 2023 (NTGe-23), to ensure TTNT is interoperable with the fleet and performance is met					

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Continue leading the Tactical Data Dissemination initiative (TDDi) project and coordinate targeted waveform specification updates, develop reference implementation capabilities, and initiate governance and Community of Interest (COI) coordination efforts. Continue the development of the TTNT FIT to support platform integration and testing efforts at various lead platform (EA-18G, F/A-18E/F, E-2D) facilities and DT/OT test squadrons. Continue MIDS systems engineering, communication security, IA and program management support. Continue Core Waveform, Link 16 Lead Service work in accordance with OSD memorandum dated 29MAR19. Work encompasses all eleven duties as laid out in the memorandum including System of Systems Analysis of Link 16 networks, waveform Mission Threads/Kill Chains and associated Information Exchange Requirements (IERs) to guide Joint fielding and terminal development recommendations with associated prioritizations. Develop basic digital model to guide Link 16 development strategies. Develop a Link 16 reference implementation platform for prototyping and to conduct frequency testing and testing other changes in standards and/or mandated updates. Continue with Link 16 development fixes and updates. ***FY 2024 Base Plans:*** Complete Block Cycle 1 (Software Release 1) formal contractor qualification testing. Conduct Government testing, and begin EMC Features testing on BC1 for transition of the software into production and provide software to fielded terminals for front panel upload. Fix any discrepancies found in EMC Features testing to ensure the transition and EMC approval. Begin requirements development and fixes to be included in Block Cycle 2 Link 16 requirements. Continue MIDS JTRS CMN-4 enhancements machine to machine interface (MMI) software download capability and user authentication to comply with terminal security requirements. Take machine to machine prototypes and interface studies and select to the most viable solution. Begin waveform updates for the machine to machine interface. Test new crypto capabilities with the new software development. Continue TTNT waveform changes and capability gap improvements with new Integrated Builds (IB) of Software drops. Begin testing JOIN and DLEP capability with MIDS Modernization hardware and front panel loading capability in the Block Cycle 1 release. Begin CFAQT, GFAQT and EMC Features testing of the new JOIN capabilities into MIDS JTRS TTNT and address any problem reports before testing is complete. Conduct					

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
CFAQT, GFAQT and EMC Features testing of the new DLEP capabilities into MIDS JTRS TTNT and begin integration for fleet release and test. Investigate and fix any problem reports that come out of testing the new capability. Award contract for Advanced Tactical Datalinks (ATDL) Waveform development. Industry will take the current waveform and variants and modify for MIDS JTRS TTNT hardware in accordance with the government spec developed previously in risk reduction. Draft new Functional Baseline (FBL), Allocated Baseline (ABL) and design document requirements for the waveform to be in MIDS JTRS TTNT. Develop the initial architecture and conduct System Functional Review (SFR) and System Requirement Review (SRR) to determine the design stability. Investigate a software solution for switching from waveform to waveform in the MIDS JTRS TTNT terminals. Ensure ATDL Waveform is enabled for MIDS JTRS TTNT terminals but also current waveform users for increased interoperability. Continue the TTNT System of Systems (SoS) Modeling, Simulation, and Analysis (MS&A) effort by incorporating new TTNT platform simulators, applications, and networks modeling to optimize the TTNT networks for increased warfighter capacity and capability. Use modeling and simulation scenarios for MOW and ATDL waveform capabilities. Complete the Consolidated Automated Support System (CASS) Test Program Sets (TPS) prototype test and regression test for fleet release. Continue to Support multiple testing, demonstrations and exercises utilizing TTNT terminals and networks focused on the integration of TTNT terminals into newer, non-Lead Platform programs, including MQ-25, Surface Ships, and various Joint airborne platforms. Continue leading the Tactical Data Dissemination initiative (TDDi) project and coordinate targeted waveform specification updates, develop reference implementation capabilities, and initiate governance and Community of Interest (COI) coordination efforts. Continue the development of the TTNT FIT to support new platform integration and testing efforts at various platform integration sites, laboratory, and T&E facilities. Continue MIDS systems engineering, communication security, IA and program management support.					

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Develop and establish Department of Defense (DoD) Tactical Aircraft Reference Implementation Laboratory (TACAIR RIL). The TACAIR RIL will develop a pre-vetted library of Services, Waveform Applications (WFAs) and Non-waveform Applications to enable accelerated delivery of capabilities to the warfighter. Continue Core Waveform, Link 16 Lead Service work in accordance with OSD memorandum dated 29MAR19. Continue System of Systems Analysis of Link 16 networks, waveform Mission Threads/Kill Chains and associated Information Exchange Requirements (IERs) to guide Joint fielding and terminal development recommendations with associated prioritizations. Continue to update the basic digital model to guide Link 16 development strategies. Use the Link 16 reference implementation platform for prototyping and conducting frequency testing and other changes in standards and/or mandated updates. Continue with Link 16 development fixes and updates. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** MIDS RDTE overall increase of $66.6M is due to the funding of the development of ATDL waveform and DoD TACAIR Reference Implementation Laboratory.					
Accomplishments/Planned Programs Subtotals	63.855	82.429	149.068	0.000	149.068

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Multifunctional Information Distribution System Joint Tactical System (MIDS JTRS) development was initiated as a major modification to the MIDS-LVT using an Engineering Change Proposal to the existing production contracts. The U.S. prime contractors from the MIDS-LVT program, Data Link Solutions (DLS) and Viasat Inc., cooperatively designed and developed each of the MIDS JTRS terminal variants and Block Upgrade 2 for MIDS-LVT. The U.S. implemented a continuous competition strategy between DLS and ViaSat that will be maintained throughout the MIDS-LVT and MIDS JTRS production phases. This strategy has been successfully used on all MIDS variants.

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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Prior Years	Various	Various : Various	55.985	0.000		0.000		0.000		-		0.000	0.000	55.985	55.986
Link 16 Waveform Development	WR	NIWC PAC : San Diego, CA	0.823	0.345	Dec 2021	0.345	Jan 2023	0.345	Jan 2024	-		0.345	Continuing	Continuing	Continuing
TTNT Waveforrm/SW Updates	C/CPFF	DLS : Cedar Rapids, IA	2.605	3.766	Oct 2021	5.759	Oct 2022	6.048	Dec 2023	-		6.048	Continuing	Continuing	Continuing
TTNT Waveforrm/SW Updates	C/CPFF	ViaSat : San Diego, CA	1.268	1.049	Jan 2022	4.102	Nov 2022	4.307	Dec 2023	-		4.307	Continuing	Continuing	Continuing
TTNT Post Dev Test/ Problem Report Fixes	C/CPFF	DLS : Cedar Rapids, IA	0.900	3.250	Oct 2021	4.328	Oct 2022	4.544	Jan 2024	-		4.544	Continuing	Continuing	Continuing
TTNT Post Dev Test/ Problem Report Fixes	C/CPFF	Viasat : San Diego, CA	1.685	0.713	Nov 2021	3.000	Nov 2022	3.150	Jan 2024	-		3.150	Continuing	Continuing	Continuing
MIDS JTRS L16 HW Upgrade	C/CPFF	Viasat : San Diego, CA	18.468	6.506	Oct 2021	0.000		0.000		-		0.000	0.000	24.974	24.974
MIDS EMC Features Updates and Testing	C/CPFF	Viasat : San Diego, CA	1.737	4.615	Mar 2022	3.544	Nov 2022	4.430	Feb 2024	-		4.430	Continuing	Continuing	Continuing
MIDS EMC Features Updates and Testing	C/CPFF	DLS : Cedar Rapids, IA	0.621	2.948	Nov 2021	1.500	Mar 2023	2.625	Feb 2024	-		2.625	Continuing	Continuing	Continuing
MIDS Mod SW/FW Full Development	C/CPFF	DLS : Cedar Rapids, IA	0.960	8.162	Oct 2021	8.780	Dec 2022	11.889	Jan 2024	-		11.889	0.000	29.791	29.791
MIDS Mod SW/FW Full Development	C/CPFF	Viasat : San Diego, CA	0.224	3.107	Dec 2021	8.380	Dec 2022	7.927	Jan 2024	-		7.927	0.000	19.638	19.639
Field Loadable Capability Dev	C/CPFF	DLS : Cedar Rapids, IA	6.181	1.178	Nov 2021	0.000		0.000		-		0.000	0.000	7.359	7.359
Field Loadable Capability Dev	C/CPFF	Viasat : San Diego, CA	2.804	0.199	Nov 2021	0.000		0.000		-		0.000	0.000	3.003	3.003
Modernize Special Test Equipment WIN10	C/CPFF	DLS : Cedar Rapids, IA	3.685	0.653	Jun 2022	0.904	Mar 2023	0.000		-		0.000	0.000	5.242	5.242
Test Equipment for Depot/ lab	C/FFP	DLS : Cedar Rapids, IA	3.252	4.175	Dec 2021	2.536	Jun 2023	0.000		-		0.000	0.000	9.963	9.963
Test Equipment for Depot/ lab	C/FFP	ViaSat : San Diego, CA	1.858	3.167	Dec 2021	1.375	Jun 2023	0.000		-		0.000	0.000	6.400	6.400

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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
TTNT Advanced Techniques	C/CPFF	DLS : Cedar Rapids, IA	0.000	0.000		5.441	Oct 2022	13.114	Nov 2023	-		13.114	Continuing	Continuing	Continuing
TTNT Advanced Techniques	C/CPFF	ViaSat : San Diego, CA	0.000	0.000		2.523	Apr 2023	9.741	Nov 2023	-		9.741	Continuing	Continuing	Continuing
TTNT Enhancements/Tech 1	C/CPFF	MIT LL : Hanscom, MA	0.000	0.719	Dec 2021	1.000	Nov 2022	1.968	Dec 2023	-		1.968	Continuing	Continuing	Continuing
MIDS JTRS CMN-4 Software Enhancements	C/CPFF	DLS : Cedar Rapids, IA	0.000	0.532	Apr 2022	4.275	Oct 2022	5.880	Apr 2024	-		5.880	Continuing	Continuing	Continuing
MIDS JTRS CMN-4 Software Enhancements	C/CPFF	ViaSat : San Diego, CA	0.000	0.000		4.039	Oct 2022	3.920	Apr 2024	-		3.920	Continuing	Continuing	Continuing
MIDS Mod Enhancements	C/CPFF	BAE : Wayne, NJ	0.000	3.750	Apr 2022	0.500	Dec 2022	0.000		-		0.000	0.000	4.250	4.250
TTNT Advanced Development/ Enhancements	C/CPFF	MITRE : McLean, VA	0.000	0.000		1.587	Nov 2022	1.587	Jan 2024	-		1.587	0.000	3.174	3.174
SBIR Transition	C/CPFF	ADI : New York, NY	0.000	0.050	Feb 2023	0.050	Jun 2023	0.050	Mar 2024	-		0.050	0.000	0.150	0.150
ATDL Waveform Development	C/CPFF	DLS : Cedar Rapids, IA	0.000	0.000		0.000		20.000	Jan 2024	-		20.000	Continuing	Continuing	Continuing
ATDL Waveform Development	C/CPFF	L3Harris : San Diego, Ca	0.000	0.000		0.000		17.219	Jan 2024	-		17.219	Continuing	Continuing	Continuing
TACAIR RIL	WR	NIWC PAC : San Diego, CA	0.000	0.000		0.000		6.100	Jan 2024	-		6.100	0.000	6.100	-
		Subtotal	103.056	48.884		63.968		124.844		-		124.844	Continuing	Continuing	N/A

Remarks

TTNT Advanced Techniques development increase in FY24 with DLEP and JOIN in test and Vital Smoke full development on-going with TRR events and modeling and simulation scenarios.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Prior Years	Various	Various : Various	2.116	0.000		0.000		0.000		-		0.000	0.000	2.116	2.116

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Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
CSS TPS/Depot Support	WR	NAVAIR : North Island San Diego, CA	0.640	0.000		2.200	Nov 2022	1.563	Jan 2024	-		1.563	0.000	4.403	4.403
Modeling and Sim Suppt TTNT	WR	NAVAIR : China Lake, CA	1.021	0.150	Apr 2022	0.660	Dec 2022	0.825	Dec 2023	-		0.825	Continuing	Continuing	Continuing
CORE Waveform Support	WR	NIWC PAC : San Diego, CA	0.000	4.248	Oct 2021	4.591	Oct 2022	5.343	Oct 2023	-		5.343	Continuing	Continuing	Continuing
I-Level Support Equipment	C/CPFF	Viasat : San Diego, CA	1.619	1.152	Oct 2021	0.486	Mar 2023	0.000		-		0.000	0.000	3.257	3.257
NSA Certification Support	MIPR	NSA : Fort Meade, MD	0.030	0.100	Apr 2022	0.200	Apr 2023	0.350	Jan 2024	-		0.350	Continuing	Continuing	Continuing
MIDS Modernization/ Mission Network Support	WR	NAVAIR : China Lake, CA	0.081	1.723	Oct 2021	0.500	Nov 2022	0.500	Nov 2023	-		0.500	Continuing	Continuing	Continuing
NRL Support	WR	NRL : Washington DC	0.000	0.150	Feb 2022	0.000		0.000		-		0.000	0.000	0.150	0.150
IA Cert SUpport	WR	NIWC LANT : Charleston, SC	0.000	0.114	Feb 2023	0.123	Mar 2023	0.250	Jan 2024	-		0.250	Continuing	Continuing	Continuing
MIT LL Modeling and Sm	C/CPFF	MIT LL : Hanscom, AFB	1.500	0.000		0.605	Nov 2022	0.700	Dec 2023	-		0.700	0.000	2.805	2.805
		Subtotal	7.007	7.637		9.365		9.531		-		9.531	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation (DT&E)	WR	NIWC PAC : San Diego, CA	2.361	3.586	Nov 2021	5.202	Nov 2022	10.350	Nov 2023	-		10.350	0.000	21.499	21.499
Developmental Test & Evaluation (DT&E)	WR	COMOPTEVFOR : Norfolk, VA	0.185	0.008	May 2022	0.055	Apr 2023	0.200	Dec 2023	-		0.200	0.000	0.448	0.448
		Subtotal	2.546	3.594		5.257		10.550		-		10.550	0.000	21.947	N/A

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Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Remarks															
Government lab and flight testing (DT and OT) for MIDS Modernization (JTRS hardware enhancement) and testing of JOIN and DLEP capabilities for TTNT begin in FY2024.															

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Prior Years	Various	Various : Various	0.304	0.000		0.000		0.000		-		0.000	0.000	0.304	0.304
Systems Engineering Support	MIPR	MITRE : Bedford, MA	1.539	2.568	Dec 2021	1.394	Dec 2022	1.500	Dec 2023	-		1.500	Continuing	Continuing	Continuing
Government Engineering Support	WR	NIWC PAC : San Diego,CA	2.058	0.700	Nov 2021	0.750	Oct 2022	0.900	Nov 2023	-		0.900	Continuing	Continuing	Continuing
Data Link Analysis	WR	NAVAIR : Pax River, MD	0.335	0.106	Jan 2022	0.208	Dec 2022	0.215	Dec 2023	-		0.215	Continuing	Continuing	Continuing
Engineering Support	C/CPFF	Sentek Global : San Diego, Ca	0.690	0.066	Apr 2022	0.812	Dec 2022	0.853	Dec 2023	-		0.853	0.000	2.421	2.421
Information Assurance, Risk and Program Support	C/CPFF	G2 : San Diego, Ca	0.717	0.000		0.250	Jan 2023	0.250	Jan 2024	-		0.250	0.000	1.217	1.217
Information Assurance, Risk and Program SupportText	MIPR	AFRL : Rome, NY	0.275	0.300	Dec 2021	0.425	Dec 2022	0.425	Dec 2023	-		0.425	Continuing	Continuing	Continuing
		Subtotal	5.918	3.740		3.839		4.143		-		4.143	Continuing	Continuing	N/A

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	118.527	63.855		82.429		149.068		-		149.068	Continuing	Continuing	N/A

Remarks

Prior Year cost data is provided under PE 0205604N Project 3020.

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604280N / *JT TACTICAL RADIO SYSTEM (JTRS)*	**Project (Number/Name)** 3020 / *MIDS/JTRS*

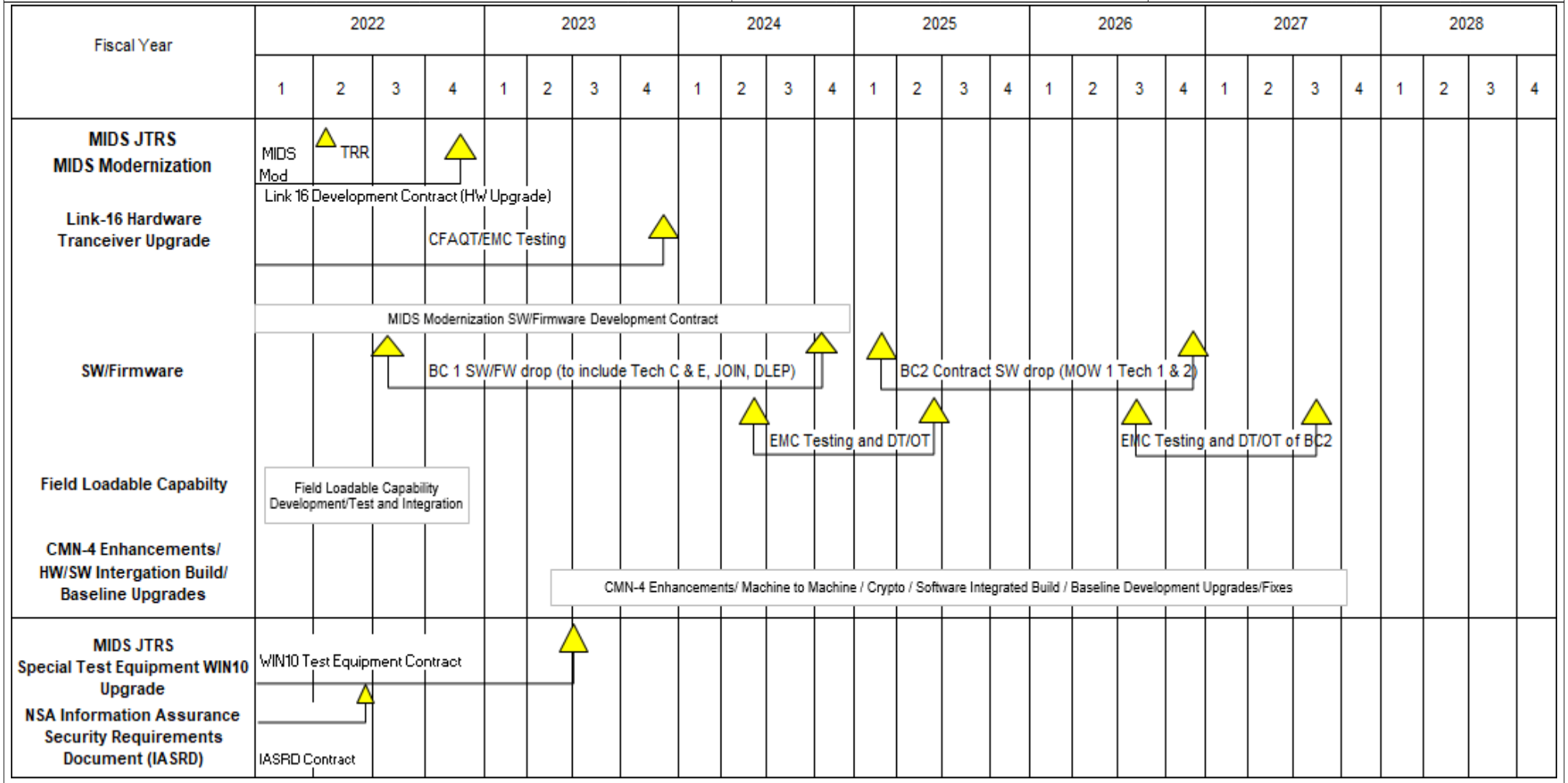


Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604280N / *JT TACTICAL RADIO SYSTEM (JTRS)*	**Project (Number/Name)** 3020 / *MIDS/JTRS*

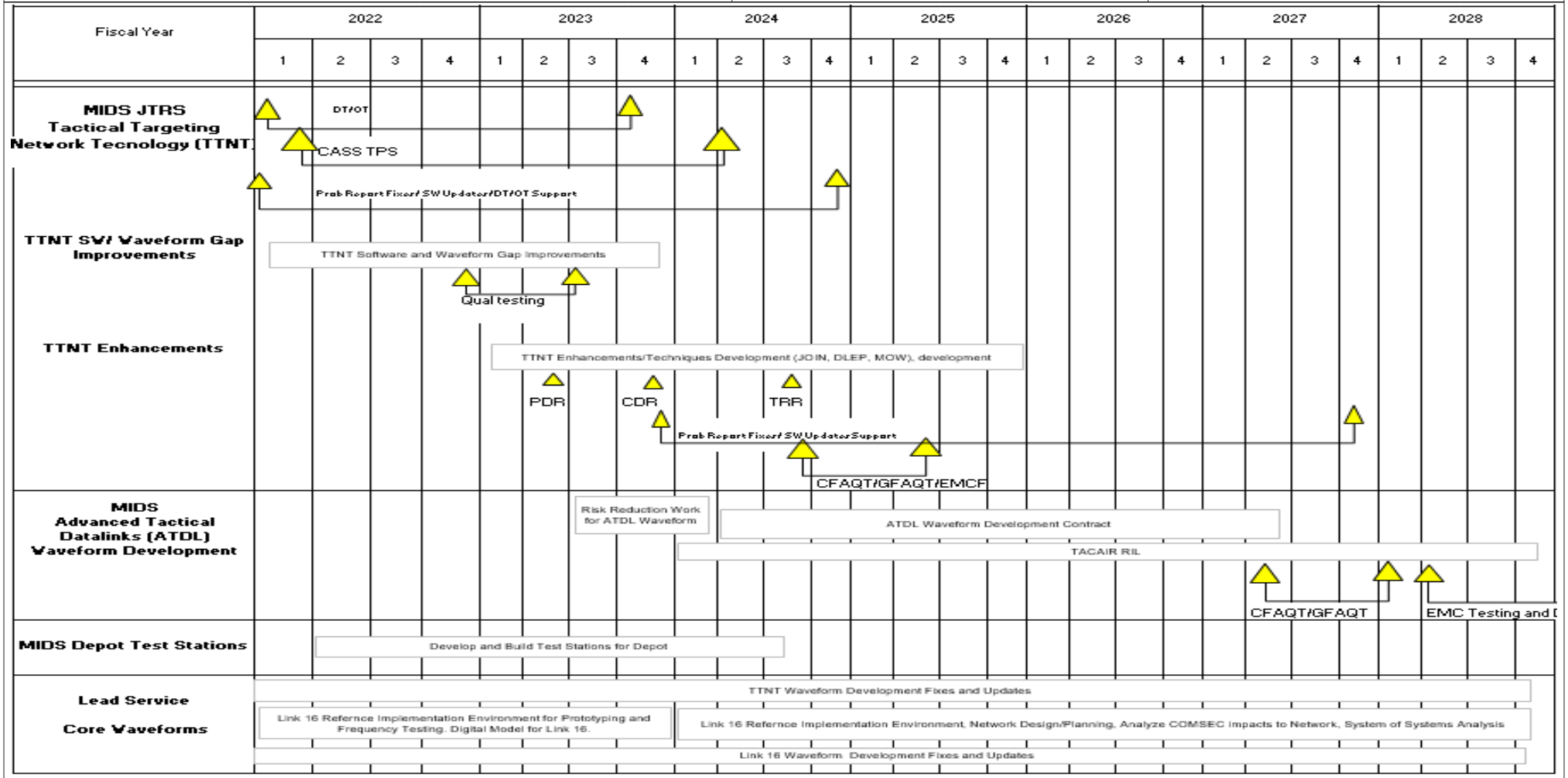


Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604280N / *JT TACTICAL RADIO SYSTEM (JTRS)*	**Project (Number/Name)** 3020 / *MIDS/JTRS*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 3020				
MIDS JTRS Modernization Link 16 Hardware Transceiver Upgrade: Development Contract	1	2022	4	2022
MIDS JTRS Modernization Link 16 Hardware Transceiver Upgrade: Test Readiness Review	2	2022	2	2022
MIDS JTRS Modernization Link 16 Hardware Transceiver Upgrade: Contractor First Article Qualification Test (CFAQT)/EMC Testing	1	2022	4	2023
MIDS JTRS Modernization Software/Firmware: MIDS Modernization SW/FW development contract	1	2022	4	2024
MIDS JTRS Modernization Software/Firmware: BC 1 SW/FW Drop 1	3	2022	4	2024
MIDS JTRS Modernization Software/Firmware: BC 2 SW/FW Drop 2	1	2025	4	2026
MIDS JTRS Modernization Software/Firmware: BC1 EMC Testing and Developmental Test and Operational Test	2	2024	2	2025
MIDS JTRS Modernization Software/Firmware: BC2 EMC Testing and Developmental Test and Operational Test	3	2026	3	2027
Field Loadable Capability: Field Loadable Capability Development/Test and Integration	1	2022	4	2022
CMN-4 Enhancements/SW Baseline: CMN-4 Enhancements/Machine to Machine/ Crypto/Software Integrated Build	2	2023	4	2027
MIDS JTRS Modernization Special Test Equipment (STE): STE Update WIN10 Contract	2	2022	3	2023
NSA Information Assurance Security Requirements Document (IASRD): IASRD Contract	1	2022	2	2022
MIDS JTRS Tactical Targeting Network Technology (TTNT): Platform Developmental Test (DT) and Operational Test (OT)	1	2022	4	2023

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604280N / *JT TACTICAL RADIO SYSTEM (JTRS)*	**Project (Number/Name)** 3020 / *MIDS/JTRS*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
MIDS JTRS Tactical Targeting Network Technology (TTNT): Consolidated Automated Support System (CASS) Test Program Sets (TPS)	1	2022	2	2024
MIDS JTRS Tactical Targeting Network Technology (TTNT): Problem Report Fixes/SW Updates DT/OT Support	1	2022	4	2024
TTNT Waveform Gap Improvements: TTNT SW/Waveform Gap Improvements	1	2022	4	2023
TTNT Waveform Gap Improvements: Qual Testing	4	2022	3	2023
TTNT Enhancements: Enhancements/Techniques Contract Award	1	2023	4	2025
TTNT Enhancements: Enhancements/Techniques Preliminary Design Review	2	2023	2	2023
TTNT Enhancements: Enhancements/Techniques Critical Design Review	4	2023	4	2023
TTNT Enhancements: Test Readiness Review	3	2024	3	2024
TTNT Enhancements: CFAQT/GFAQT/EMCF	3	2024	2	2025
TTNT Enhancements: Problem Report Fixes/SW Updates Support (Fixes out of test)	4	2023	4	2027
MIDS Advanced Tactical Datalinks Waveform Development: Risk Reduction Work for ATDL Waveform	3	2023	1	2024
MIDS Advanced Tactical Datalinks Waveform Development: TACAIR RIL	1	2024	4	2028
MIDS Advanced Tactical Datalinks Waveform Development: ATDL Waveform Development Contract	2	2024	2	2027
MIDS Advanced Tactical Datalinks Waveform Development: CFAQT/GFAQT	2	2027	1	2028
MIDS Advanced Tactical Datalinks Waveform Development: EMC Testing and DT/OT	2	2028	4	2028
MIDS Depot Test Stations: Test Station	1	2022	3	2024
MIDS Core Waveforms: TTNT Waveform Development Fixes and Updates	1	2022	4	2028
MIDS Core Waveforms: Link 16 Reference Implementation Environment for Prototyping and Frequency Testing	1	2022	4	2023
MIDS Core Waveforms: Link 16 Refernce Implementation Environment, Network Design/Planning, Analyze COMSEC impacts to Network, System of Systems Analysis	1	2024	4	2028
MIDS Core Waveforms: Link 16 Waveform Development Fixes and Updates	1	2022	4	2028

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604280N / *JT TACTICAL RADIO SYSTEM (JTRS)*	Project (Number/Name) 3078 / *Digital Modular Radio*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
3078: *Digital Modular Radio*	53.890	2.460	6.347	7.115	-	7.115	6.868	6.820	6.948	7.088	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Digital Modular Radio (DMR) with Integrated Waveform (IW) and Mobile User Objective System (MUOS) capable hardware is the Navy's technical solution for the IW/ MUOS requirement. The DMR AN/USC-61(C), is the first software defined radio to become a communications system standard for the U.S. Military. The compact, multi-channel DMR provides 3G, Wideband Code Division Multiple Access (WCDMA) technology, for high speed/capacity voice and data satellite communications. DMR radios currently operate aboard U.S. Navy surface and subsurface vessels, fixed-sites and other Department of Defense (DoD) communication platforms using frequencies ranging from 2 MHz to 2 GHz. Certified to pass secure voice and data at Multiple Independent Levels of Security (MILS) over High Frequency (HF), Very High Frequency (VHF), Ultra High Frequency (UHF), and Satellite Communications (SATCOM) channels, the DMR system was developed to the U.S. Navy's specifications and meets all the stringent environmental, Electromagnetic Interference (EMI) and performance requirements for use in the U.S. Fleet. This system is formally specified by both Fleet Commanders as a threshold capability, for global maritime command control and communications in a Distributed Maritime Environment, to execute current warfighting plans and is required for National Command and Control capability. This program is for continued development/integration of the IW and MUOS waveforms into the DMR in accordance with Military Standards 188-181,2,3. Additionally, the enhancements of High Frequency Distribution Amplifier Group (HFDAG) and, HF Automated Link Establishment (ALE) and Second-Generation Anti-Jam Tactical UHF Radio for NATO (SATURN) will also be developed/ integrated into the DMR. HFDAG is a follow-on HF solution to fulfill transmit and receive HF communication capability with various modes of operation, such as ALE, for Navy platforms. HFDAG will utilize the existing DMR as the exciter/receiver. Generation 3 (GEN 3) HF ALE/HF wideband provides Navy users with improved HF communications, increased transmission rates from radio to radio, and serves as a supplement to SATCOM when SATCOM networks are overloaded or unavailable. SATURN is the follow-on HAVEQUICK II anti-jamming solution in accordance with NATO Standardization Agreement 4372. (Retirement date for HAVEQUICK II is no later than 1OCT24.) SATURN capability will counter adversaries' jamming efforts and ensure Navy's Assured Command and Control UHF communications operational end-to-end capability as well as enhance interoperability within/between DMR users and with Allied/Coalition partners. IW uses a Time Division Multiple Access (TDMA) communication system in an attempt to improve satellite bandwidth utilization over legacy SATCOM waveforms. This enables demand assigned services on UHF SATCOM networks to support new applications that require better performance and higher channel throughput. The MUOS waveform will enable MUOS satellites to provide worldwide communication satellite coverage for DoD requirements. MUOS will provide functionality comparable to commercial mobile phone systems.

FY24 will continue integration of the MUOS waveform 3.2 as well as development of the SATURN waveform from the currently used HAVEQUICK II (HQII) waveform; and complete development of Crypto Mod SINCGARS 3.x Phase 2.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: DMR	2.460	6.347	7.115	0.000	7.115
Articles:	-	-	-	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604280N / *JT TACTICAL RADIO SYSTEM (JTRS)*	**Project (Number/Name)** 3078 / *Digital Modular Radio*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Description: Overall program efforts include investigation of emerging technologies through study, development and associated testing for feasibility of program insertion. DMR, with IW and MUOS capable hardware, is the Navy's technical solution for the IW/MUOS requirement. As the Navy's primary technical solution, DMR provides the UHF SATCOM IW and MUOS waveform capability to the Fleet. The MUOS waveform enables MUOS satellites to provide worldwide communication satellite coverage for DoD requirements, with functionality comparable to commercial mobile phone systems. ***FY 2023 Plans:*** FY23 DMR will complete Advanced HF (AHF) Functionality Development, continue crypto mod integration, including MUOS waveform 3.2, and begin development of the Second generation Anti-jam Tactical UHF Radio for North Atlantic Treaty Organization (NATO) (SATURN) waveform. GDMS shall evaluate the 3.1 and 3.2 advanced modems which will require the confirmation and operational capability on the DMR. The Current 100W amplifiers will additionally need to be evaluated for performance with the SATURN WF. ***FY 2024 Base Plans:*** FY24 DMR will complete crypto mod integration. DMR will continue MUOS waveform 3.2 integration as well as development of the Second generation Anti-jam Tactical UHF Radio for North Atlantic Treaty Organization (NATO) (SATURN) waveform. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** The $0.768M increase in funding from FY23 to FY24 is for continuation of the development of the SATURN waveform.					
Accomplishments/Planned Programs Subtotals	2.460	6.347	7.115	0.000	7.115

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• OPN/3010: *Shipboard Tactical Comms*	43.212	36.941	29.776	-	29.776	27.350	32.087	35.622	36.392	Continuing	Continuing

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604280N / *JT TACTICAL RADIO SYSTEM (JTRS)*	**Project (Number/Name)** 3078 / *Digital Modular Radio*

D. Acquisition Strategy

General Dynamics Mission Systems (GDMS), formerly General Dynamics C4 Systems (GDC4S), owns the technical data rights to the Digital Modular Radio (DMR). Due to this fact, they are the only contractor with the unique capabilities and technical know-how to perform the required design work to complete the Integrated Waveform (IW) upgrade, the Mobile User Objective System (MUOS) interoperability efforts, and cryptographic modernization development.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604280N / *JT TACTICAL RADIO SYSTEM (JTRS)*	**Project (Number/Name)** 3078 / *Digital Modular Radio*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
IW/MUOS Development	C/CPFF	GDMS : Scottsdate, AZ	24.671	0.000		0.000		0.000		-		0.000	0.000	24.671	-
AHF Functionality Development	C/CPFF	GDMS : Scottsdale, AZ	11.172	1.477	Oct 2021	0.000		0.000		-		0.000	0.000	12.649	-
IW/MUOS Development	WR	NIWC PAC : San Diego, CA	0.600	0.000		0.000		0.000		-		0.000	0.000	0.600	-
AHF Functionality Development	WR	NIWC PAC : San Diego, CA	1.130	0.200	Oct 2021	0.150	Oct 2022	0.000		-		0.000	0.000	1.480	-
Cryptographic Modernization Development	C/CPFF	GDMS : Scottsdale, AZ	1.170	0.000		0.000		0.000		-		0.000	0.000	1.170	-
Cryptographic Modernization Development	WR	NIWC PAC : San Diego, CA	0.370	0.200	Dec 2021	0.300	Dec 2022	0.780	Dec 2023	-		0.780	Continuing	Continuing	Continuing
SATURN Development	C/CPFF	GDMS : Scottsdale, AZ	0.000	0.000		4.128	Oct 2022	0.786	Oct 2023	-		0.786	Continuing	Continuing	Continuing
SATURN Development	WR	NIWC PAC : San Diego, CA	0.000	0.000		1.084	Oct 2022	4.776	Oct 2023	-		4.776	Continuing	Continuing	Continuing
		Subtotal	39.113	1.877		5.662		6.342		-		6.342	Continuing	Continuing	N/A

Remarks

Product development increase between FY23 to FY24 is due to continued SATURN development effort. Cryptographic Modernization includes MUOS waveform 3.2 efforts as well.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
System Engineering Support	C/CPFF	NIWC PAC : San Diego, CA	8.091	0.228	Dec 2021	0.228	Dec 2022	0.228	Dec 2023	-		0.228	Continuing	Continuing	Continuing
		Subtotal	8.091	0.228		0.228		0.228		-		0.228	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604280N / *JT TACTICAL RADIO SYSTEM (JTRS)*	**Project (Number/Name)** 3078 / *Digital Modular Radio*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation (DT&E)	C/CPFF	GDMS : San Diego, CA	0.000	0.229	Dec 2021	0.229	Dec 2022	0.225	Dec 2023	-		0.225	Continuing	Continuing	Continuing
Developmental Test & Evaluation (DT&E)	WR	NIWC PAC : San Diego, CA	0.000	0.063	Nov 2021	0.128	Nov 2022	0.120	Nov 2023	-		0.120	Continuing	Continuing	Continuing
Prior Year Developmental Test & Evaluation Not Funded FYDP (PYDT&E)	Various	Various : Various	4.160	0.000		0.000		0.000		-		0.000	0.000	4.160	-
		Subtotal	4.160	0.292		0.357		0.345		-		0.345	Continuing	Continuing	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	C/CPFF	BAH : San Diego, CA	2.526	0.063	Nov 2021	0.100	Nov 2022	0.200	Nov 2023	-		0.200	Continuing	Continuing	Continuing
		Subtotal	2.526	0.063		0.100		0.200		-		0.200	Continuing	Continuing	N/A

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	53.890	2.460		6.347		7.115		-		7.115	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604280N / *JT TACTICAL RADIO SYSTEM (JTRS)*	**Project (Number/Name)** 3078 / *Digital Modular Radio*

DMR

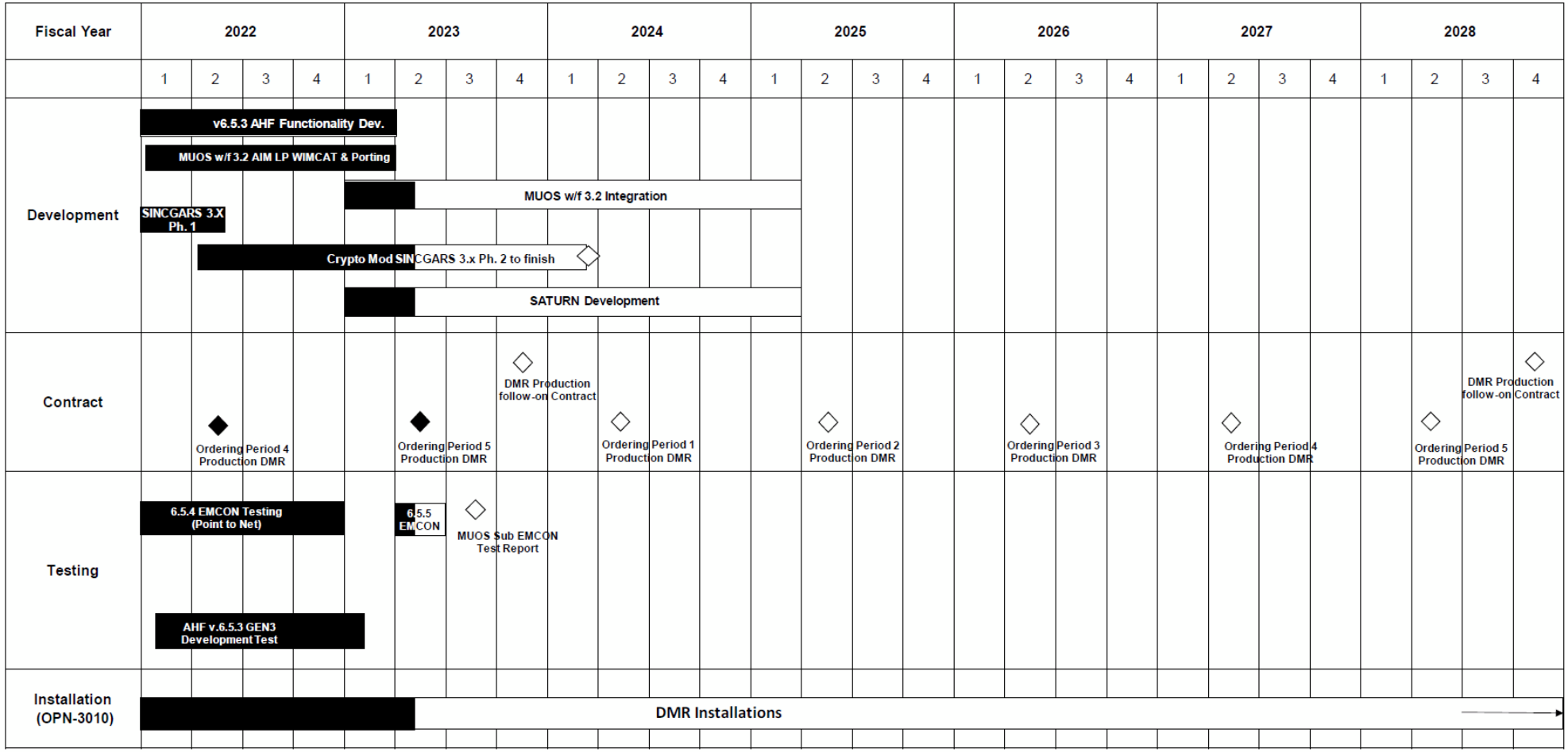


Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604280N / *JT TACTICAL RADIO SYSTEM (JTRS)*	**Project (Number/Name)** 3078 / *Digital Modular Radio*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 3078				
Production Deliveries	1	2022	4	2028
DMR Installations	1	2022	4	2028
Crypto Mod SINCGARS 3.x Ph. 1 to CDR	1	2022	2	2022
6.5.4 Submarine EMCON Testing (Point to Net)	1	2022	4	2022
AHF ALE GEN 3 AHF Functionality Development (v6.5.3)	1	2022	1	2023
MUOS w/f 3.2 AIM LP WIMCAT & Porting	1	2022	1	2023
MUOS w/f 3.2 Integration	1	2023	1	2025
MUOS Sub EMCON Test Report	3	2023	3	2023
Crypto Mod SINCGARS 3.x Ph. 2 to finish	2	2022	1	2024
AHF ALE GEN 3 Software Development (v6.5.3) Development Test	1	2022	1	2023
SATURN Development	1	2023	1	2025
6.5.5 Submarine EMCON Testing	2	2023	2	2023

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604280N / *JT TACTICAL RADIO SYSTEM (JTRS)*	Project (Number/Name) 3341 / *Network Tactical Common Data Link*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
3341: *Network Tactical Common Data Link*	71.274	19.162	6.037	3.017	-	3.017	5.489	4.444	5.636	4.650	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Network Tactical Common Data Link (NTCDL) provides the ability to transmit/receive real-time Intelligence, Surveillance, and Reconnaissance (ISR) data simultaneously from multiple sources (surface, airborne, sub-surface, man-portable), and exchange command and control information (voice, data, imagery, and Full Motion Video) across dissimilar joint, service, coalition, and civil networks. NTCDL provides warfighters with the capability to support multiple, simultaneous, networked operations with currently fielded Common Data Link (CDL)-equipped air platforms (e.g. MH-60R), in addition to next generation manned and unmanned platforms (e.g., P-8, Triton, MQ-25 (Stingray), small tactical unmanned aircraft systems (STUAS) and Fire Scout). NTCDL is an incremental capability (surface, airborne, sub-surface, man-portable) providing modular, scalable, multiple-link networked communications. NTCDL benefits the fleet by providing a horizon extension for line-of-sight sensor systems for use in time-critical strike missions and supports tasking, collection, processing, exploitation, and dissemination (TCPED) via its ISR networking capability. NTCDL supports Resilient Command and Control (RC2) through its relay capability, and supports TCPED through its ISR networking capability.

FY 2024 request is for NTCDL to conduct Initial Operational Test and Evaluation and continue development of Initial Capability to support high speed waveforms, and high speed data rates (up to 45 Mpbs), and platform communication equipment.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Network Tactical Common Data Link (NTCDL)	19.162	6.037	3.017	0.000	3.017
Articles:	-	-	-	-	-
Description: Network Tactical Common Data Link (NTCDL) provides the ability to transmit/receive real-time Intelligence, Surveillance, and Reconnaissance (ISR) data simultaneously from multiple sources (surface, airborne, sub-surface, man-portable), and exchange command and control information (voice, data, imagery, and Full Motion Video) across dissimilar joint, service, coalition, and civil networks. NTCDL provides warfighters with the capability to support multiple, simultaneous, networked operations with currently fielded Common Data Link (CDL)-equipped air platforms (e.g. MH-60R), in addition to next generation manned and unmanned platforms (e.g., P-8, Triton, MQ-25 (Stingray), small tactical unmanned aircraft systems (STUAS) and Fire Scout). NTCDL is an incremental capability (surface, airborne, sub-surface, man-portable) providing modular, scalable, multiple-link networked communications. NTCDL benefits the fleet by providing a horizon extension for line-of-sight sensor systems for use in time-critical strike missions and supports tasking, collection, processing,					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604280N / *JT TACTICAL RADIO SYSTEM (JTRS)*	**Project (Number/Name)** 3341 / *Network Tactical Common Data Link*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
exploitation, and dissemination (TCPED) via its ISR networking capability. NTCDL supports Resilient Command and Control (RC2) through its relay capability, and supports TCPED through its ISR networking capability. FY 2024 request is for NTCDL to conduct Initial Operational Test and Evaluation and continue development of Initial Capability to support high speed waveforms, and high speed data rates (up to 45 Mpbs) and platform communication equipment. ***FY 2023 Plans:*** FY 2023 plans include development of Engineering Development Models (EDM) Initial Capability software (Ku). Continued maturation of software supporting the initial hardware capability and providing increased CDL bandwidth, platform communication equipment, and data rates. ***FY 2024 Base Plans:*** FY 2024 plans include the commencing Tech Evaluation and Initial Operational Test & Evaluation, and continued maturation of software supporting the initial hardware capability and providing continuing maturation of software to provide increased CDL bandwidth, platform communication equipment, and data rates. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** The FY24 funding decreased by $3.02M due to completion EDM #2 technical data package (TDP) and functional configuration audit (FCA) as well as completion of DT-B2, EDM PAA #2 First Article Test completion.					
Accomplishments/Planned Programs Subtotals	19.162	6.037	3.017	0.000	3.017

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• OPN/2950: *Network Tactical Common Data Link (CDL)*	8.795	11.792	16.475	-	16.475	9.070	12.602	7.435	13.233	Continuing	Continuing

Remarks

NTCDL is the follow-on program for the CDLS Tech Refresh. The OPN for this program began in FY22.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604280N / *JT TACTICAL RADIO SYSTEM (JTRS)*	**Project (Number/Name)** 3341 / *Network Tactical Common Data Link*

D. Acquisition Strategy

NTCDL will utilize the evolutionary acquisition approach for: surface, air, sub-surface, man-portable in a scalable development approach. EDMs and LRIPs will provide Ku-band Phased Array Antennas (PAAs) with 4 simultaneous links, with a range of 110-150 nautical miles and speeds of up to 45Mbps; with the future ability, if funded, to deliver Full Capability which will include 2 additional simultaneous links (X/Ku), increase range up to 240 nautical miles, and increase speeds up to 274Mbps.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604280N / *JT TACTICAL RADIO SYSTEM (JTRS)*	Project (Number/Name) 3341 / *Network Tactical Common Data Link*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
NTCDL Product Development	C/CPIF	BAE Systems, Int : Wayne, NJ	58.158	11.848	Oct 2021	3.581	Oct 2022	0.000		-		0.000	0.000	73.587	-
NTCDL Software Development	C/CPIF	TBD : TBD	0.000	0.000		0.000		0.633	Jun 2024	-		0.633	0.000	0.633	Continuing
NTCDL Software Development	WR	NIWC PAC : San Diego, CA	3.226	4.448	Nov 2021	0.400	Nov 2022	0.456	Nov 2023	-		0.456	Continuing	Continuing	Continuing
NTCDL Software Development	C/IDIQ	Technology Unlimited Group : San Diego, CA	1.326	0.719	Feb 2022	0.255	Feb 2023	0.511	Feb 2024	-		0.511	Continuing	Continuing	Continuing
		Subtotal	62.710	17.015		4.236		1.600		-		1.600	Continuing	Continuing	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
NTCDL Systems Engineering	WR	NIWC PAC : San Diego, CA	3.481	0.430	Nov 2021	0.433	Nov 2022	0.228	Nov 2023	-		0.228	Continuing	Continuing	Continuing
NTCDL Logistics Engineering	C/CPFF	CSA : San Diego, CA	0.202	0.000		0.000		0.000		-		0.000	0.000	0.202	-
		Subtotal	3.683	0.430		0.433		0.228		-		0.228	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation (DT&E)	WR	NIWC PAC : San Diego, CA	3.896	0.855	Nov 2021	0.700	Nov 2022	0.516	Nov 2023	-		0.516	Continuing	Continuing	Continuing
Operational Test & Evaluation (OT&E)	MIPR	JITC : Fort Huachuca, AZ	0.021	0.040	Dec 2021	0.220	Nov 2022	0.150	Nov 2023	-		0.150	Continuing	Continuing	Continuing
Operational Test & Evaluation (OT&E)	MIPR	COMOPTEVFOR : Norfolk, VA	0.044	0.022	Dec 2021	0.230	Nov 2022	0.295	Nov 2023	-		0.295	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604280N / *JT TACTICAL RADIO SYSTEM (JTRS)*	**Project (Number/Name)** 3341 / *Network Tactical Common Data Link*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	3.961	0.917		1.150		0.961		-		0.961	Continuing	Continuing	N/A

Management Services ($ in Millions)

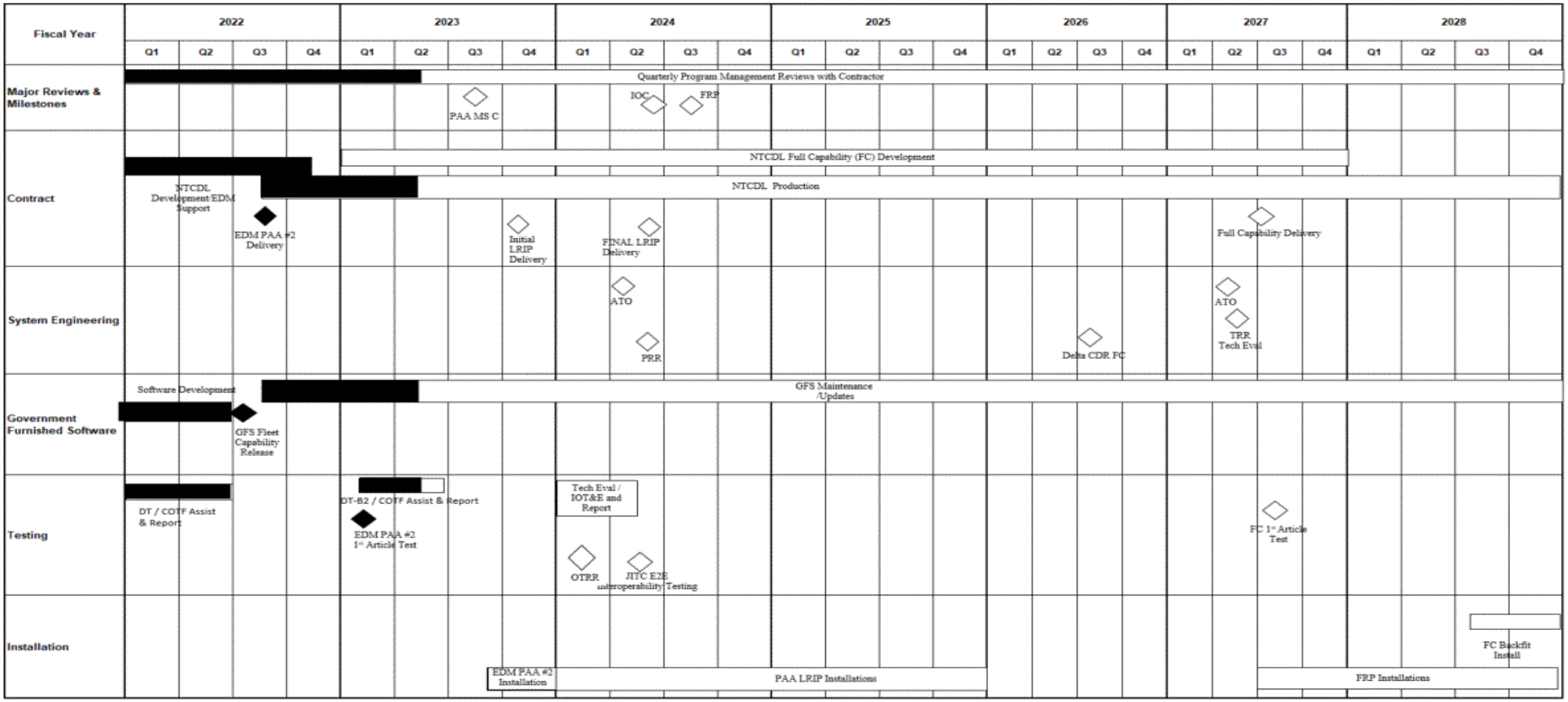
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
NTCDL Program Management Support	C/CPFF	BAH : San Diego, CA	0.920	0.800	Nov 2021	0.218	Nov 2022	0.228	Nov 2023	-		0.228	Continuing	Continuing	Continuing
		Subtotal	0.920	0.800		0.218		0.228		-		0.228	Continuing	Continuing	N/A

	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	71.274	19.162		6.037		3.017		-		3.017	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604280N / *JT TACTICAL RADIO SYSTEM (JTRS)*	**Project (Number/Name)** 3341 / *Network Tactical Common Data Link*

NTCDL



Footnotes:

1. EDM PAA #2 was reprioritized to be fielded as a production representative unit to the fleet in order to meet and support MQ-25 testing requirements by Q3FY23. This install is funded with OPN under BLI 2950 in FY23.
2. Joint Interoperability Test Command (JITC) Interoperability E2E testing shifted to Q2FY24 to allow for delivery of asset availability due to reprioritization of EDM PAA #2.

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604280N / *JT TACTICAL RADIO SYSTEM (JTRS)*	**Project (Number/Name)** 3341 / *Network Tactical Common Data Link*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 3341				
Quarterly Program Management Review with Contractor	1	2022	4	2028
NTCDL Development/EDM Support Contract	1	2022	4	2022
Government Furnished Software (GFS) Development	1	2022	2	2022
Development Testing (DT) / COTF Assist & Report	1	2022	2	2022
Operational Test Readiness Review (OTRR) 1	1	2024	1	2024
NTCDL Full Capability Development	1	2023	4	2027
GFS Fleet Capability Release	3	2022	3	2022
EDM PAA #2 First Article Test	1	2023	1	2023
JITC E2E Interoperability Testing	2	2024	2	2024
PAA Milestone C	3	2023	3	2023
NTCDL Production Contract	3	2022	4	2028
GFS Maintenance/Updates	3	2022	4	2028
EDM 2 PAA Delivery (QTY 1)	3	2022	3	2022
FC First Article Test	3	2027	3	2027
Delta Critical Design Review (CDR) Full Capability (FC)	3	2026	3	2026
Initial LRIP Delivery	4	2023	4	2023
TRR Tech Eval	2	2027	2	2027
Tech Evaluation / IOT&E and Report	1	2024	2	2024
PAA LRIP Installations	1	2024	4	2025
Initial Operational Capability (IOC)	2	2024	2	2024
ATO 2	2	2027	2	2027

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604280N / *JT TACTICAL RADIO SYSTEM (JTRS)*	**Project (Number/Name)** 3341 / *Network Tactical Common Data Link*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Full Capability (FC) Delivery	3	2027	3	2027
Final LRIP Delivery	2	2024	2	2024
Production Readiness Review (PRR)	2	2024	2	2024
FRP Installations	3	2027	4	2028
ATO	2	2024	2	2024
Full Capability Back-fit Install	3	2028	4	2028
DT-B2 / COTF Assist & Report	1	2023	2	2023
FRP	3	2024	3	2024
EDM PAA #2 Installation	3	2023	4	2023

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy										Date: March 2023		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604280N / *JT TACTICAL RADIO SYSTEM (JTRS)*				Project (Number/Name) 4011 / *Naval Coastal Warfare Surv and C4I Sys*			
COST ($ in Millions)	**Prior Years**	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Cost To Complete**	**Total Cost**
4011: *Naval Coastal Warfare Surv and C4I Sys*	5.494	2.059	3.314	3.274	-	3.274	3.062	3.111	3.163	3.227	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Navy Expeditionary project supports the Navy Expeditionary Combat Command (NECC) mission to detect, deter or interdict potential threats to DoN assets using agile, modular and scalable technology. NECC units have a number of current and future Command, Control, Communications, Computers & Intelligence (C4I) technological requirements for Tactical/Command Operations Center, tactical vehicles, combatant craft, and dismounted personnel. NECC operations require units to maintain effective command and control, develop and display a common tactical picture, and share intelligence and current operational information with higher headquarters, subordinate units, joint forces and coalition allies. Small, Medium and Large Scale Communication Systems (LSCS) are the C4I hub for the NECC; Navy Enterprise Tactical Command and Control (NETC2) is the converged LSCS baseline. Future C4I research and development include enhanced information transport, network cyber security posture, cloud-based architecture, assured communications in denied environments along with agility and mobility. Funding also supports testing and evaluation of cyber security issues associated with obsolescence of network items and if not addressed will impact the ability of the Program Office to maintain system accreditation under Risk Management Framework (RMF) revoking multiple LSCS assets authority to connectivity on the Department of Defense Information Network (DoDIN). Efforts are in alignment with NECC's strategic Expeditionary Warfare Improvement Program (EXWIP) Integrated Priority Capability List (IPCL) priorities and maintain alignment with greater DoD initiatives, such as Joint Information Environment (JIE), Mission Partner Environment (MPE) in order to maintain interoperability and drive down DoN enterprise costs.

The future of large scale communications assets such as Navy Enterprise Tactical Command and Control (NETC2) (V) 1 and 2, Expeditionary Carry-on Network (ExCON), Assured Command and Control (AC2), will be converging to a Common Expeditionary and Shore Baseline culminating in a single RMF Authority to Operate (ATO). Next generation air, surface and subsurface surveillance systems, as well as enhanced C4I capabilities, are required to meet operational objectives. Future technologies are being evaluated as enabling capabilities to expand situational awareness, providing additional tactical decision aids to the local area commander. Future C4I research and development efforts will be identified within NECC strategic Expeditionary Warfare Improvement Program (EXWIP) Integrated Priority Capability List (IPCL) priorities to increase agility, mobility and network security posture. Additional efforts will be driven by greater DoD initiatives, such as JIE Inc II, in order to maintain interoperability and drive down DoN enterprise costs.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**
Title: NECC C4ISR Modernization	2.059	3.314	3.274	0.000	3.274
Articles:	-	-	-	-	-
FY 2023 Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604280N / *JT TACTICAL RADIO SYSTEM (JTRS)*	**Project (Number/Name)** 4011 / *Naval Coastal Warfare Surv and C4I Sys*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Evaluate technologies to support migration to Impact level 6 (IL6) and Impact Level 7 (IL7) cloud environments. Keep expanding capabilities of common infrastructure to increase speed to capability through containerization technologies and utilization of DevSecOps in order to rapidly deliver mission tailored applications and cloud based services. Develop Tier 1 capabilities to support multi-cloud environments. Additionally, C4I Arsenal will participate in military exercises to prove concept and timing requirements can be met. ***FY 2024 Base Plans:*** Continue to evaluate technologies to support migration to Impact level 6 (IL6) and Impact Level 7 (IL7) cloud environments. Keep expanding capabilities of common infrastructure to increase speed to capability through containerization technologies and utilization of DevSecOps in order to rapidly deliver mission tailored applications and cloud based services. Develop Tier 1 capabilities to support multi-cloud environments. Additionally, C4I Arsenal will participate in military exercises to prove concept and timing requirements can be met. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Decrease of $0.04 million from FY23 to FY24 is a result of the reduction of onsite surveys in preparation of Operation Exercises.					
Accomplishments/Planned Programs Subtotals	2.059	3.314	3.274	0.000	3.274

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Funding supports an evolutionary acquisition strategy supporting the dynamically evolving rapid action mission of Navy Expeditionary Forces. Small, Medium and Large Scale Communication Systems (LSCS) funding will align LSCS to the Deployable Joint Command and Control (DJC2) product baseline. The project will continuously analyze operational
utilization of the systems and will roll analysis results into periodic system upgrades to address cyber security vulnerabilities, obsolescence, and maximize operational effectiveness. The intent of this strategy is to drive down development, production, and logistics costs, while leveraging technologies developed for other agencies to increase the capabilities of Navy Expeditionary Forces. The baseline configuration for Large Scale Communication Systems (LSCS) is the Navy Enterprise Tactical Command and Control (NETC2), a system scalable to Adaptive Force Package (AFP) levels. Efforts include development of capabilities based on emergent

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604280N / *JT TACTICAL RADIO SYSTEM (JTRS)*	**Project (Number/Name)** 4011 / *Naval Coastal Warfare Surv and C4I Sys*

requirements, operational feedback, alignment with Dept. of Defense initiatives such as Joint Information Environment (JIE) / Mission Partner Environment, and identification through strategic Expeditionary and Warfare Improvement Program (EXWIP) Integrated Priority Capability List (IPCL) priorities to include reach back for tactical vehicles and craft, blue force tracking, tactical data link capability, and sensor technologies in support of surveillance and reconnaissance missions.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604280N / *JT TACTICAL RADIO SYSTEM (JTRS)*	**Project (Number/Name)** 4011 / *Naval Coastal Warfare Surv and C4I Sys*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering - Expeditionary	WR	NSWC : PANAMA CITY, FL	1.503	0.556	Nov 2021	0.895	Nov 2022	0.883	Nov 2023	-		0.883	Continuing	Continuing	Continuing
Hardware/Software Development	C/CPAF	GTRI : ATLANTA, GA	2.343	0.886	Nov 2021	1.425	Nov 2022	1.406	Nov 2023	-		1.406	Continuing	Continuing	Continuing
		Subtotal	3.846	1.442		2.320		2.289		-		2.289	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Operational Test & Evaluation (OT&E)	WR	NSWC : PANAMA CITY, FL	0.425	0.257	Nov 2021	0.521	Nov 2022	0.512	Nov 2023	-		0.512	Continuing	Continuing	Continuing
Developmental Test & Evaluation (DT&E)	WR	NSWC : PANAMA CITY, FL	0.742	0.175	Nov 2021	0.175	Nov 2022	0.175	Nov 2023	-		0.175	Continuing	Continuing	Continuing
		Subtotal	1.167	0.432		0.696		0.687		-		0.687	Continuing	Continuing	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support - Expeditionary	WR	NIWC PAC : SAN DIEGO, CA	0.481	0.185	Nov 2021	0.298	Nov 2022	0.298	Nov 2023	-		0.298	Continuing	Continuing	Continuing
		Subtotal	0.481	0.185		0.298		0.298		-		0.298	Continuing	Continuing	N/A

	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	5.494	2.059		3.314		3.274		-		3.274	Continuing	Continuing	N/A

Remarks

Prior Year cost data is provided under PE 0604230N Project 4011

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
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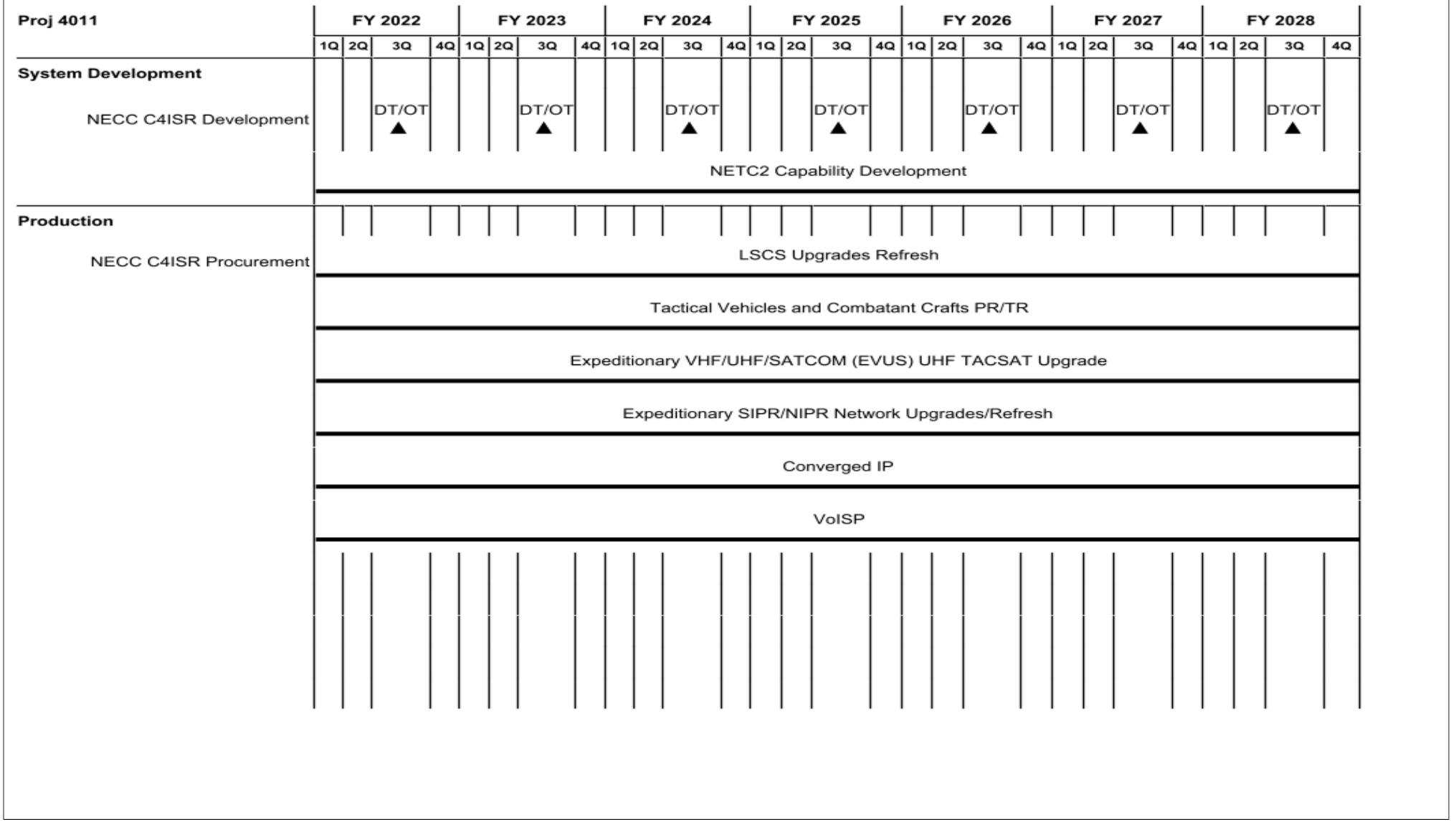


Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604280N / *JT TACTICAL RADIO SYSTEM (JTRS)*	**Project (Number/Name)** 4011 / *Naval Coastal Warfare Surv and C4I Sys*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 4011				
System Development: NECC C4ISR Development: Navy C4I Test and Certification Events FY22	3	2022	3	2022
System Development: NECC C4ISR Development: Navy C4I Test and Certification Events FY23	3	2023	3	2023
System Development: NECC C4ISR Development: Navy C4I Test and Certification Events FY24	3	2024	3	2024
System Development: NECC C4ISR Development: Navy C4I Test and Certification Events FY25	3	2025	3	2025
System Development: NECC C4ISR Development: Navy C4I Test and Certification Events FY26	3	2026	3	2026
System Development: NECC C4ISR Development: Navy C4I Test and Certification Events FY27	3	2027	3	2027
System Development: NECC C4ISR Development: Navy C4I Test and Certification Events FY28	3	2028	3	2028
System Development: NECC C4ISR Development: NETC2 Capability Development	1	2022	4	2028
Production: NECC C4ISR Procurement: LSCS Upgrades Refresh	1	2022	4	2028
Production: NECC C4ISR Procurement: Tactical Vehicles and Combatant Crafts PR/TR	1	2022	4	2028
Production: NECC C4ISR Procurement: Expeditionary VHF/UHF/SATCOM (EVUS) UHF TACSAT Upgrade	1	2022	4	2028
Production: NECC C4ISR Procurement: Expeditionary SIPR/NIPR Network Upgrades/Refresh	1	2022	4	2028
Production: NECC C4ISR Procurement: Converged IP	1	2022	4	2028
Production: NECC C4ISR Procurement: VoISP	1	2022	4	2028

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604280N / *JT TACTICAL RADIO SYSTEM (JTRS)*	Project (Number/Name) 9999 / *Congressional Adds*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
9999: *Congressional Adds*	0.000	0.000	5.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	5.000
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Congressional Add provides for the development, test and evaluation of enhanced capabilities for Satellite Communications by furthering Science & Technology (S&T) research and transition activities associated with resilient communications capabilities. Specifically, this funding will provide for technology development, test, demonstration and validation for a Luneburg Lens antenna system for Low Earth Orbit (LEO) and Medium Earth Orbit (MEO) satellites (e.g., SpaceXs Starlink, OneWeb, Amazons Kuiper, etc.). This antenna system will include the development of a unique and enabling capability to perform direct conversion of Radio Frequency (RF) energies to/from photons, which is required to significantly reduce the complexity of signals routing and size for the Luneburg Lens based solid state phased array antenna system.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023
Congressional Add: Integrated photonic systems	0.000	5.000
FY 2022 Accomplishments: N/A		
FY 2023 Plans: Fund Science & Technology (S&T) projects for Satellite Terminal (transportable) Non-Geostationary (STtNG), which are broken in to the following 9 tasks: 1. System-level Study: This study will determine the Luneburg Lens antenna system requirements based on link-budget analyses and constraints set by the Government customer. The identified requirements will translate to a set of technical specifications for each sub-system, which will influence the system architecture design. 2. Luneburg Lens Development: Identify potential external commercial Luneburg lens providers/manufacturers and possible materials for internal/in-house Luneburg lens fabrication. The performer will compare the identified fabrication methods and will decide on the best way forward to build and test prototype lenses with planar or curved probe arrays. 3. Hemispheric Antenna Feed Development: Identify critical antenna feed features and refine the performance specifications. The performer will investigate lens configurations to meet these specifications and design, simulate, fabricate and test feed prototypes. This will result in a build of a full antenna feed array.		

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604280N / *JT TACTICAL RADIO SYSTEM (JTRS)*	**Project (Number/Name)** 9999 / *Congressional Adds*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023
4. Rx/Tx/TRx Photonic Integrated Circuits (PICs) Development: Expand the current Phase II Small Business Innovative Research (SBIR) development of silicon PICs on a system-level vice device-level. This task will include the continued heterogeneous integration development as required for implementation of desired TRx modules, as well as the development of layout designs for a manufacturing run of PICs suitable for integration into the Luneburg lens system. 5. Develop Modulators: Develop Thin-Film Lithium Niobate (TFLN) modulators with high conversion efficiency and large operational bandwidth, as well as suitable packing techniques for hemispherical integration. 6. Develop Photodetectors: Develop photodetectors with high power and high linearity for the Tx and a balanced configuration on the Rx with a very high common-mode-rejection-ratio (CMRR), which is used to mitigate relative intensity noise (RIN). 7. RF/EO TRx Modules: Design, fabricate and test: RF gain and diplexer section, optical/photonic carrier, and ultimately, a full RF/EO module with antenna feed. 8. Build a Multi-Module System: This task will develop the fabrication processes for an increased module count. 9. Develop controls, monitoring and processing software for the Luneburg lens antenna system.		
Congressional Adds Subtotals	0.000	5.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604280N / *JT TACTICAL RADIO SYSTEM (JTRS)*	**Project (Number/Name)** 9999 / *Congressional Adds*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Product Development	C/CPFF	BASCOM : Baton Rouge, LA	0.000	0.000		4.400	Aug 2023	0.000		-		0.000	0.000	4.400	-
		Subtotal	0.000	0.000		4.400		0.000		-		0.000	0.000	4.400	N/A

Remarks

FY23 Funding to provide support for Science and Technology (S&T) Projects in support of for Satellite Terminal (transportable) Non-Geostationary (STtNG) efforts.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Engineering Support Services	WR	NIWC PAC : San Diego, CA	0.000	0.000		0.400	Apr 2023	0.000		-		0.000	0.000	0.400	-
Engineering Support Services	WR	NUWC : Newport, RI	0.000	0.000		0.200	Apr 2023	0.000		-		0.000	0.000	0.200	-
		Subtotal	0.000	0.000		0.600		0.000		-		0.000	0.000	0.600	N/A

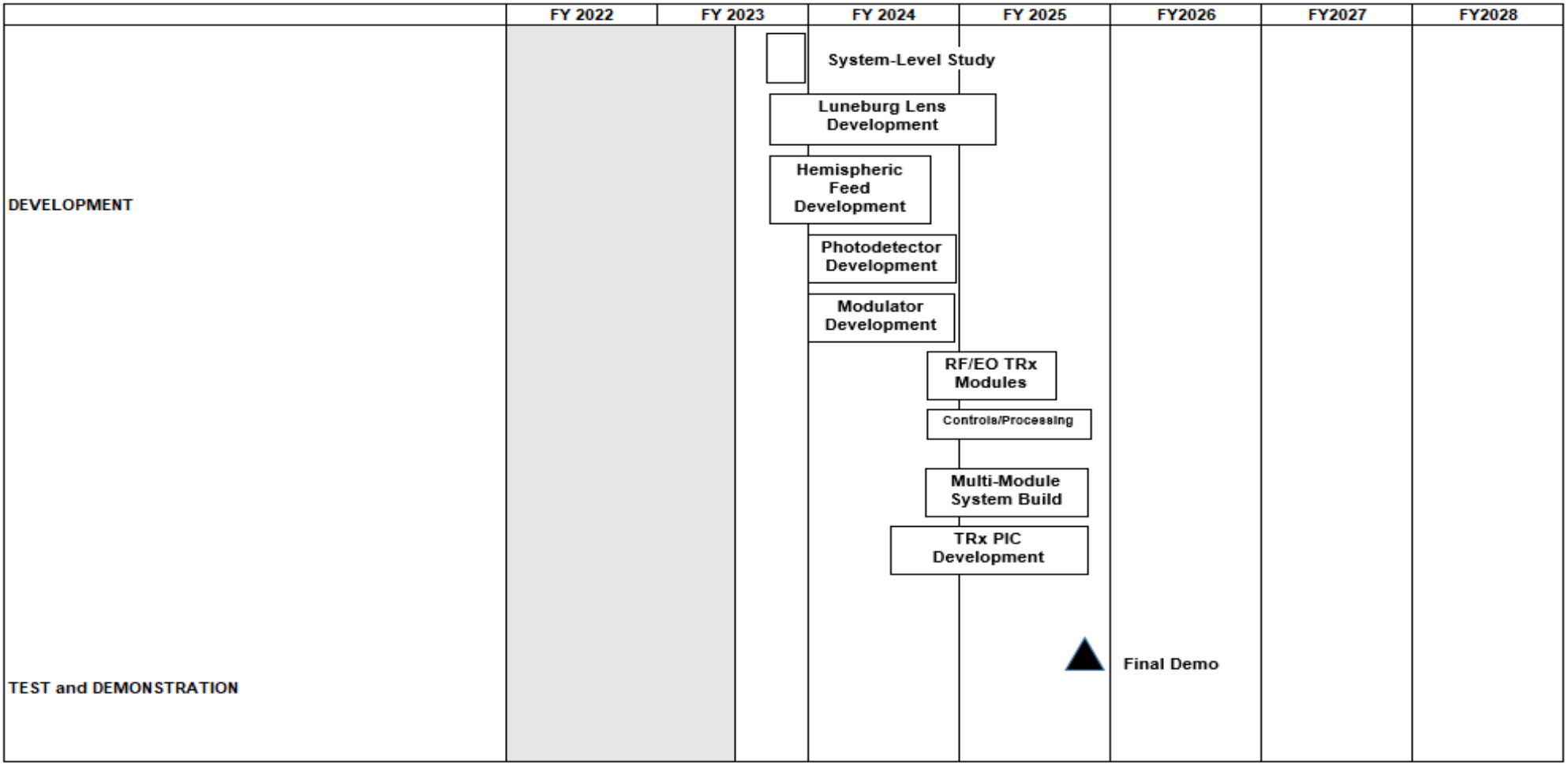
Remarks

FY23 Funding provided Engineering Support Services for Science and Technology (S&T) Projects in support of for Satellite Terminal (transportable) Non-Geostationary (STtNG) efforts.

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.000		5.000		0.000		-		0.000	0.000	5.000	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604280N / *JT TACTICAL RADIO SYSTEM (JTRS)*	**Project (Number/Name)** 9999 / *Congressional Adds*



Notes:

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604280N / *JT TACTICAL RADIO SYSTEM (JTRS)*	**Project (Number/Name)** 9999 / *Congressional Adds*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 9999				
System Level Study	4	2023	4	2023
Luneburg Lens Development	4	2023	2	2025
Hemisphere Feed Development	4	2023	4	2024
Photodetector Development	1	2024	4	2024
Modulator Development	1	2024	4	2024
RF/EO TRx Modules	4	2024	3	2025
Controls Processing	4	2024	4	2025
Multi-Module System	4	2024	4	2025
TRx PIC Development	3	2024	4	2025
Final Demo	4	2025	4	2025