Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Navy											Date: May 2021	
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 5: *System Development & Demonstration (SDD)*					R-1 Program Element (Number/Name) PE 0304785N *I ISR & INFO OPERATIONS*							
COST ($ in Millions)	**Prior Years**	**FY 2020**	**FY 2021**	**FY 2022 Base**	**FY 2022 OCO**	**FY 2022 Total**	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**	**Cost To Complete**	**Total Cost**
Total Program Element	389.964	87.099	107.964	136.140	-	136.140	-	-	-	-	-	-
2134: *Shipboard IW Exploit*	389.964	43.231	50.204	73.549	-	73.549	-	-	-	-	-	-
2174: *Distributed Common Ground System-Navy (DCGS-N)*	0.000	0.583	0.592	0.645	-	0.645	-	-	-	-	-	-
2227: *Distributed Common Ground System (DCGS-N) Inc 2*	0.000	38.770	26.396	30.748	-	30.748	-	-	-	-	-	-
2351: *MDA*	0.000	0.000	4.000	3.846	-	3.846	-	-	-	-	-	-
3091: *Advanced Cryptological Sys Eng (CCOP)*	0.000	4.515	4.610	4.386	-	4.386	-	-	-	-	-	-
3786: *Tactical Edge Targeting*	0.000	0.000	22.162	22.966	-	22.966	-	-	-	-	-	-
Program MDAP/MAIS Code: **Project MDAP/MAIS Code(s):** M464												

Note

There are no New Starts associated with Program Element 0304785N for FY 2022:
- Project 2134, Shipboard IW Exploit / Horizon and Distributed Operations (DO) is an existing development and engineering effort intended to fulfil Department of Defense (DoD) level capability requirement voids for shipboard cryptologic systems including Ship's Signal Exploitation Equipment (SSEE) and Spectral. Funding is being broken out in FY 2022 for visibility.

A. Mission Description and Budget Item Justification

The Tactical Cryptologic Systems in this budget 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. Overall program development efforts include the investigation of emerging technologies through study, development and associated testing for feasibility of program insertion.

The Shipboard Information Warfare (IW) Exploit project consists of the Ship's Signal Exploitation Equipment (SSEE) Family of Systems (FoS) Increment F (and variants), Spectral, SSEE Modifications, as well as the Integrated Communications and Data Systems (ICADS) Increment II. These programs are classified Information Warfare/Electronic Warfare (IW/EW) tactical cryptologic systems supporting Command and Control, Battlespace Awareness, Electromagnetic Maneuver Warfare/Integrated Fires (EMW/IF) modes of global engagement. The systems enable power projection at the strategic level, operate in any environment including communications challenged situations across the globe, and provide offensive Electronic Warfare (EW) capabilities at the tactical level, ensuring surface vessels ability

to disrupt, deny, degrade and defeat adversary (state and non-state) use of the radio frequency spectrum while simultaneously providing advanced Information Related Capabilities (IRC) to maritime warfighters. SSEE FoS detect adversary radio frequency emissions and use them to provide critical tactical and strategic intelligence, situational awareness, and hostile threat assessment depriving the adversary of enhanced signals exploitation capability and limiting their ability to counter strike. The systems are managed as incremental acquisition programs designed to pace adversary communications technology development by using Research, Development, Test and Evaluation (RDT&E) funding to rapidly develop and transition new technologies and provide new capabilities as Pre-Planned Product Improvement (P3I) upgrades into the system's hardware/software configuration. They focus on developing and delivering expanded offensive IW/EW and future Cyberspace capabilities in accordance with Presidential direction and in support of multiple Operational Plans (OPLANS). ICADS is a mission critical system providing advanced simulation capability for naval platforms as well as back-up communications capabilities. Additional details for these programs held at a higher classification level. Horizon and Distributed Operations (DO) delivers the Navy's Integrated Fires capability solution via Afloat/Shore across all operational domains required to meet the Great Power Competition (GPC) high end threat. Horizon provides the initial Battle Management Aids (BMA) vital to plan and execute offensive and defensive IW in the Electromagnetic (EM) spectrum and physical space. DO as the follow-on to CLASSIC REACH provides the enabling sea/shore infrastructure needed to expand assets on a Distributed Signal Intelligence (SIGINT) Operations (DSO) grid. The development and engineering effort is intended to fulfil Department of Defense (DoD) level capability requirement voids for shipboard cryptologic systems including SSEE and Spectral.

Distributed Common Ground System (DCGS) is a cooperative effort between the services, agencies, and the DoD to provide systems capable of receiving, processing, exploiting, and disseminating data from airborne and national reconnaissance platforms. DCGS - Navy (DCGS-N) is the Navy instance of the Under Secretary of Defense, Intelligence (USD (I)) DCGS FoS. DCGS-N system fulfills a critical mission set Afloat and Ashore. DCGS-N processes and exploits tactical and Imagery Intelligence (IMINT) and SIGINT, facilitates precision target geopositioning, mensuration, and imagery capabilities, integrates national IMINT requirements and processing capabilities from the National Geospatial-Intelligence Agency (NGA), and shares Intelligence, Surveillance, Reconnaissance, and Targeting (ISR&T) and Command and Control information via the DCGS Integration Backbone (DIB), Defense Intelligence Information Enterprise (DI2E), and Net-Centric Enterprise Services (NCES) standards with a wide range of customers. The DCGS-N program conducts research and assessments of tactically relevant, emerging technologies program insertion to ensure superiority in the intelligence domain.

Intelligence Carry-On Program (ICOP) provides Indications and Warnings (I&W), battlespace awareness/visualization, pattern of life analysis, Full-Motion Video (FMV) and Intelligence Surveillance and Reconnaissance (ISR) Processing, Exploitation and Dissemination (PED) capabilities in support of Unit-Level Navy surface (CG, DDG, and LPD classes) and expeditionary operations. The ICOP system includes a three-eyed ruggedized workstation that serves as a powerful afloat edge computing device that is capable of operating on all three security domains (NIPR, SIPR and JWICs) and an antenna/receiver set (called Communications Module 3 - CM3) that is used to ingest, process and exploit airborne sensor data. In addition to supporting multi-intelligence capabilities, ICOP/CM3 provides an end-to-end ISR PED architecture that includes processing organic shipboard camera systems to support Navy-wide Operational Task (OPTASK) Visual Information (Strategic Communications - "First to the Truth," pattern of life analysis and use of force/rules of engagement decisions).

The Maritime Domain Awareness (MDA) project is a portfolio of partnerships that leverages the investments of other agencies in MDA tools and data, and funds the enhancement of those tools to meet Navy requirements for worldwide over-the-horizon vessel tracking and vessel data in support of DCGS-N, Navy Tactical Data Manager (NTDM) and Automated Information System (AIS) program. The MDA project manages the partnership with the Department of Transportation to leverage the Maritime Safety and Security Information System (MSSIS) and SeaVision, a non-Public Key Infrastructure (PKI) information sharing tool used by United States Indo-

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Navy	Date: May 2021
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Pacific Command (INDOPACOM), European Command (EUCOM), Africa Command (AFRICOM), other USG agencies, and foreign partner nations to increase maritime security by sharing information. SeaVision's track picture is founded on commercially procured AIS data, with additional data from commercial geospatial data, and data contributed by partners such as costal AIS and costal radar. SeaVision is primarily accessed through a web front end where users can visualize tracks and run a growing set of analytics. SeaVision also has Application Programming Interfaces (APIs) for machine-to-machine data exchange with authorized systems including the Navy's AIS. SeaVision was initiated by the Executive Agent for MDA office, which has since disestablished. The MDA project manages the partnership with the National Reconnaissance Office (NRO) to leverage the THRESHER Maritime system, which provides over-the-horizon vessel tracking and analysis tools. The MDA project is working with NRO to enhance THRESHER Maritime capabilities to produce a correlated and fused track feed over the Integrated Broadcast Service and to provide THRESHER on both JWICS and SIPR net. Completion of these enhancements results in the decommissioning of legacy MDA tools SeaLink Advanced Analysis (S2A) and Analytic Collaborative Environment-Maritime (ACE-M). The MDA project manages the sustainment of SeaLink Advanced Analysis (S2A) which provides a correlated and fused surface track picture known as the National All Source Fused Track Service (NAFTS) data feed via the Integrated Broadcast Service (IBS), which provides a track picture to IC systems including Fusion Analysis and Development Effort (FADE) Multi-Intelligence Spatial Temporal (MIST) and THRESHER Maritime. S2A began as a Joint Capability Technology Demonstration at Naval Research Laboratory (NRL) in 2007 and transitioned in FY21 to the MDA project. The MDA project manages the partnership with Distributed Common Ground System-Intelligence Community (DCGS-IC) for the classified cloud environment hosting of S2A and ACE-M until those system's capabilities are subsumed by THRESHER Maritime.

The Cryptologic Carry-on Program (CCOP) rapidly develops augmented SIGINT capabilities in response to Combatant Command requirements by fielding quick-reaction surface, subsurface, and airborne cryptologic carry-on capabilities. There are ~124 cryptologic capable surface ships and shore sites in the current Navy inventory; each of these is a potential user of this carry-on equipment, depending on deployment schedules and tempo of operations. In addition, numerous other Naval and Coast Guard platforms serve as other potential users.

Tactical Edge Targeting is a collection of existing National Technical Means (NTM) and organic sensors that are fused and disseminated through existing networks in real-time to enable an enhanced tracking and targeting capability. The Army, Navy and Air Force are developing longer range weapons that will require reliable and accurate targeting data to detect, classify, identify, and target adversaries. Leverages existing large sensor investments across the U.S. Government (USG). Enhances tracking against hard targets in denied environments and maintains ability to securely communicate with these sensors in real-time. The United States Navy (USN) plans to integrate existing NTM and planned new sensors with existing service architectures to provide a low-cost, resilient, real-time tracking and targeting capability to supplement existing sensors. Due to the nature of these projects, specific applications and detailed plans are available at a higher classification level.

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Navy					Date: May 2021
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy* / BA 5: *System Development & Demonstration (SDD)*			R-1 Program Element (Number/Name) PE 0304785N / *ISR & INFO OPERATIONS*		
B. Program Change Summary ($ in Millions)	**FY 2020**	**FY 2021**	**FY 2022 Base**	**FY 2022 OCO**	**FY 2022 Total**
Previous President's Budget	91.091	111.434	115.497	-	115.497
Current President's Budget	87.099	107.964	136.140	-	136.140
Total Adjustments	-3.992	-3.470	20.643	-	20.643
• Congressional General Reductions	-	-0.681			
• Congressional Directed Reductions	-	-2.789			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-3.992	0.000			
• SBIR/STTR Transfer	-	-			
• Program Adjustments	0.000	0.000	18.700	-	18.700
• Rate/Misc Adjustments	0.000	0.000	1.943	-	1.943

Change Summary Explanation

TECHNICAL:

Project 2134: Shipboard IW Exploit

- Beginning in FY 2022 Horizon and Distributed Operations (DO) will deliver the Navy's Integrated Fires capability solution via Afloat/Shore across all operational domains required to meet the Great Power Competition (GPC) high end threat. Horizon provides the initial Battle Management Aids (BMA) vital to plan and execute offensive and defensive IW in the EM spectrum and physical space. Distributed Operations (DO) as the follow-on to CLASSIC REACH provides the enabling sea/shore infrastructure needed to expand assets on a Distributed SIGINT Operations (DSO) grid.

SCHEDULE:

Project 2134: SSEE Inc F

- Beginning in FY 2022 Horizon and Distributed Operations (DO) will deliver the Navy's Integrated Fires capability solution via Afloat/Shore across all operational domains required to meet the Great Power Competition (GPC) high end threat within the SSEE Inc F and Spectral programs.
- SSEE INF F, Joint interface development was extended from Q4FY20 to Q3FY22, in accordance with the schedule.
- Nex-Gen Chassis shifted from Q2FY21 to Q3FY21, in accordance with the schedule.
- NSA Afloat (Large Deck Development) will complete Q4FY22 vice Q4FY24, in accordance with the development schedule.
- FY21 Full Rate Production (FRP) shifted from Q2FY21 to Q4FY21, in accordance with the contract schedule.

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Navy	Date: May 2021
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Project 2134: Spectral
- Beginning in FY 2022 Horizon and Distributed Operations (DO) will deliver the Navy's Integrated Fires capability solution via Afloat/Shore across all operational domains required to meet the Great Power Competition (GPC) high end threat within the SSEE Inc F and Spectral programs.
- Spectral Milestone B shifted from Q1FY21 to Q3FY21, in accordance with the schedule.
- Spectral Production Representative Article (PRA)/ Engineering Development Model (EDM) ashore shifted from Q2FY22 to Q1FY23, in accordance with the schedule.

Project 2134: SSEE MODS
- FY 2021 Full Rate Production (FRP) shifted from Q2FY21 to Q3FY21, in accordance with the contract schedule.

Project 2134: ICADS
- ICADS DT/OT Demo milestone was added in Q4 2022, in accordance with the schedule.

Project 2174: Distributed Common Ground System-Navy (DCGS-N)
- Beginning in FY 2022 action closes out DCGS-N INC 1 Studies and Design and transfers it to INC 2.

Project 2227: Distributed Common Ground System-Navy (DCGS-N) Increment 2
- Beginning in FY 2022 program is transitioning from Fleet Capability Releases (FCR) to Iterative Releases (IR) to better align to Acquisition Strategy (AS). Additional integration test events have been included to support each IR.

FUNDING:

The FY 2022 funding request was increased by $27.3M from PB21 to PB22 to account for increases in Horizon, Spectral, and Tactical Edge Targeting (TET) with a decrease of $-1.5M account for the availability of prior year execution balances and $-5.1M for other minor adjustments.

Program Element 0304785N funding increased (+$28.176M) from FY 2021 to FY 2022; Major increases/decreases noted below:

Project 2134: Spectral (+$11.528M)
- FY 2022 increase and realignment of (+$7.297) from Other Procurement, Navy (OPN) to RDT&E will support multiple Radio Frequency (RF) aperture development and interface efforts, as well as topside antenna development to meet multi-mission needs, shore and ship testing, and to complete studies, development, and integration to realize increased frequency band operability. In addition, funds will be used to procure additional hardware components and equipment, to include long-lead item topside components which together with below deck equipment, make up complete afloat and ashore PRA systems. Lastly, the increase of funding will focus on identifying and validating a Continuous Integration/Continuous Deliver (CI/CD) pipeline on the Sensitive Compartmented Information (SCI) enclave.

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Navy	Date: May 2021
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Project 2134: SSEE Modifications (-$2.075M)
- FY 2022 decrease results from completion of VPX integration and testing to support Common Core Architecture (CCA) strategies and Anti-Access Area Denial (A2AD) testing and integration into the host system in FY 2022.

Project 2134: ICADS Inc II (-$4.547M)
- FY 2022 decrease is attributed completion of most major development work including baseline system development and Radio Frequency (RF) aperture integration.

Project 2134: Horizon and Distributed Operations (DO) (+$18.700M)
- FY 2022 increase will deliver Horizon Capabilities through accelerated Distributed Ops (DO).

Project 2227: Distributed Common Ground System-Navy (DCGS-N) Increment 2 (+$4.352M)
- FY 2022 increase is due to the initial application deployment modernization utilizing containerization and Agile Core Services (ACS) to provide more frequent application.

Project 3786: Tactical Edge Targeting (TET) (+$0.804M)
- FY 2022 increase will commence Navy Integrated Fires Element (NIFE) tools transition to NRO cloud.

Exhibit R-2A, RDT&E Project Justification: PB 2022 Navy									Date: May 2021			
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0304785N / *ISR & INFO OPERATIONS*				Project (Number/Name) 2134 / *Shipboard IW Exploit*			
COST ($ in Millions)	**Prior Years**	**FY 2020**	**FY 2021**	**FY 2022 Base**	**FY 2022 OCO**	**FY 2022 Total**	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**	**Cost To Complete**	**Total Cost**
2134: *Shipboard IW Exploit*	389.964	43.231	50.204	73.549	-	73.549	-	-	-	-	-	-
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Note

There are no New Starts associated with Project 2134, Shipboard IW Exploit for FY 2022:
- Project 2134, Horizon and Distributed Operations (DO) is an existing development and engineering effort intended to fulfil Department of Defense (DoD) level capability requirement voids for shipboard cryptologic systems including Ship's Signal Exploitation Equipment (SSEE) and Spectral. Funding is being broken out in FY 2022 for visibility.

A. Mission Description and Budget Item Justification

The Shipboard Information Warfare (IW) programs are classified Information Warfare/Electronic Warfare (IW/EW) tactical cryptologic systems supporting all facets of Assured Command and Control, Battlespace Awareness, Electromagnetic Maneuver Warfare/Integrated Fires (EMW/IF) modes of global engagement. These programs provide both Carrier and Expeditionary Strike Group combatant commanders with real-time indications and warnings (I&W) through acquisition ("Find") and localization ("Fix") of Signals of Interest (SOIs) as well as provide the Surface Fleet's only EW non-kinetic capabilities ("Finish"). As an incremental acquisition program, Research, Development, Test and Evaluation (RDT&E) funding is required to: rapidly develop and integrate new technologies and associated new operational capabilities to pace both known and future signal threats; transition Pre-Planned Product Improvement (P3I) upgrades into the system's hardware/software configuration; and deliver to fielded systems as required to satisfy Fleet requirements. Program funding incorporates P3I, new Commercial-Off-The-Shelf (COTS) or Government-Off-the-Shelf (GOTS) based technologies and software into the existing systems to address Fleet priorities and capability gaps or to combat known threats. Funding focuses developing and delivering expanded non-kinetic EW capabilities and net-centric Service Oriented Architecture (SOA) to meet intended interoperability objectives through Fleet defined Common Core Architectures (CCA) to enable application hosting services. Capability development is in accordance with Presidential direction and strategic objectives while also supporting multiple Operational Plans (OPLANS), Concepts of Operations (CONOPS), and communications challenged scenarios or Anti-Access Area Denial (A2AD); further details held at a higher classification level). Ship's Signal Exploitation Equipment (SSEE) Family of Systems (FoS) will continue development and integration of capabilities which can operate in communication challenged environments for the SSEE Increment F, SSEE Modifications, and Spectral systems. Funding will bring enhanced signals exploitation and expanded SOIs processing capabilities to fielded systems and supports development and integration efforts to fuse data produced and distributed by Shipboard IW/Information Operations (IO) systems with other intelligence data at multiple classification levels to provide the data to shipboard combat systems to support kinetic and non-kinetic fires. Data Fusion can also be used to enable a more complete understanding and more agile and effective exploitation within the electromagnetic spectrum.

SSEE Increment F (and its variants) is the primary, currently fielded system providing full-scope, simultaneous capability, while system variants bring a new dimension of afloat Signals Intelligence (SIGINT) capabilities by providing advanced scalability and modularity for mission planners to execute.

SSEE Modifications is a classified tactical signals intelligence frequency extension capability integrating and interoperating with the SSEE Increment F host system and is broken into two major components: Paragon, which provides simultaneous detection, collection, processing, IO, and display of communication intelligence data from

hostile, high threat, and adversary platforms in select frequency ranges not prosecuted or countered with the host system; and the Graywing subsystem which is an advanced common data link system with SSEE Increment F systems.

Spectral is the Navy's next-generation SIGINT, EMW, and IO weapons system enabling both maritime Information and Electronic Warfare (IW/EW) for both Naval Carrier and Expeditionary Strike Group operations. Spectrals primary objective is to provide our Navy's operators with the most capable Radio Frequency (RF) Signals Intelligence (SIGINT) collection and exploitation weapon's system available to support the widest range of maritime strategic and tactical mission areas, including Indications & Warning (I&W), Targeting, and Ship's Self Defense. Spectral provides scalable, mission configurable, and modular capabilities using a common user interface through an open software architecture to allow rapid integration and deployment of special use capabilities satisfying Navy and Joint maritime intelligence requirements beyond what existing systems can provide.

Integrated Communications and Data Systems (ICADS) Increment II is a backup communications and data system developed to respond to a Fleet need for robust Command and Control in a Denied or Degraded Environment (C2D2E). ICADS Increment II has a number of different communications and data systems across the spectrum including satellite, line of sight, and high frequency communications. ICADS uses a modular approach that enables fielding aboard multiple hull types, including destroyers and unmanned surface vehicles.

Horizon and Distributed Operations (DO) delivers the Navy's Integrated Fires capability solution via Afloat/Shore across all operational domains required to meet the Great Power Competition (GPC) high end threat. Horizon provides the initial Battle Management Aids (BMA) vital to plan and execute offensive and defensive IW in the EM spectrum and physical space. Distributed Operations (DO) as the follow-on to CLASSIC REACH provides the enabling sea/shore infrastructure needed to expand assets on a Distributed SIGINT Operations (DSO) grid.

In FY 2022, SSEE Increment F will continue Pre-Planned Product Improvement (P3I) to provide enhanced capabilities into the SSEE Increment F system and its variants by continuing to develop, refine, and test new, unexplored and unexploited cyber capabilities including advanced Medusa applications and techniques through added signal processing capacity and data flows (details held at higher classification). Finalize integration solutions to incorporate other Navy development investments to enhance the Fleet's ability to dominate and defend cyberspace mediums and insert new technology enhancements via incremental software and hardware upgrades. Develop and deliver EW capabilities based upon the warfighter identified FY 2022 SOIs threats (updated annually) for integration into the SSEE Increment F systems (including its variants) and deliver as required to meet Fleet requirements. Accept delivery of the final technical data packages and apply the framework to advance the Anti-Access Area Denial (A2AD) capability development to continue to integrate specialized signal processing capabilities (including Medusa, ACES and Silk Thread functionality). SSEE Increment F will complete the architecture, network performance specifications, and hosting environment to bring NSAnet afloat by deploying the first NTDN while applying national cybersecurity standards and initiatives to bring advanced inter-strike group network capabilities able to operate in any environment while continuing to integrate cryptologic systems with shipboard combat systems for tightly coupled mission execution. Finalize all integration activity and test capabilities able to operate in communications challenged environments to maintain cognizance of current warfighter-identified signal sets and make necessary additions and improvements to the system as required by National and Fleet stakeholders.

In FY22, SPECTRAL will leverage early Engineering Design Model (EDM) system component prototypes and third-party capability development efforts, to continue full afloat system Production Representative Articles (PRA) and Capability Drop development integration with PMP, and engineer hardware as part of PRA below-deck

design solution to streamline installation timelines and costs by delivering unique hardware solutions required to fit in existing hatches and passageways to minimize size and build on scalability to maximize installation efficiency. Spectral will continue acquisition, logistics, test planning, and contracting activities toward PRA (Ashore), while continuing development and engineering of advanced IW/EW capabilities including continued SEWIP integration efforts and initial testing. These capabilities include integration of Next-Generation Medusa to counter specifically identified SOIs and development of below-deck host open system architecture (including VPX and VITA 49.2 standards implementation) that can be rapidly delivered to improve existing fielded systems and be incorporated into the Spectral PRA baseline. Spectral will continue development efforts to update and deliver new mission modules to capture modern signal sets (e.g., more complex wider bandwidth, shorter duration, low probability of detect/low probability of intercept) which will be incrementally delivered to the Fleet through capability drops. Continue to build the Continuous Integration/ Continuous Deliver (CI/CD) pipeline to improve modularity, automation, and remote delivery for future Capability Drops which will improve overall installation efficiency. Develop virtual software development environment for enhanced configuration management through Web-based services and applications for a robust, open, modular software development environment. In addition to Collaborative Development Environment (CDE) efforts, Spectral will conduct extensive ongoing systems engineering reviews to include Critical Design Review (CDR) and cybersecurity testing of the prime mission integrator's PRA system design. Continue development and engineering for Spectral's Advanced RF aperture solutions and Active Electronically Steered Array (AESA) topside and execute engineering design in topside maritime antennas to enable execution of full functionality and scope of Spectral requirements. Initiate development of new topside multi-mission apertures to realize expanded capability to the overall Spectral system.

In FY 2022, SSEE Modifications will continue hardware and software development to bring advanced capabilities to the Fleet for simultaneous detection, collection, processing, electronic warfare and display of communication intelligence data from hostile, high threat and adversary platforms in select extended frequency ranges not prosecuted today. SSEE Modification will complete development to integrate designs bringing advanced signal processing to the Next Generation-Graywing capability, enabling emergent signal threat acquisition and exploitation while migrating the design to meet future industry backplane standards to align with CCA strategies.

In FY 2022, ICADS will complete development of Increment II Production Representative Systems (PRSs) focusing on the finalizing the integration of both the enhanced signals capability as well as integration of the advanced RF option. ICADS will complete Development and Operation Test of the Increment II PRS, and continue planning and ship installation preparation including completing final Technical Design Packages and installation drawing library for shipboard integration.

In FY 2022, Horizon/Distributed Ops will transition Department of Defense (DoD) Horizon capability into the maritime domain through initial Battle Management Aids (BMA) considered vital to plan and execute offensive and defensive IW in the EM spectrum and physical space. Horizon / Ditributed Ops will bring in early phase development of the Distributed Operations (DO) capability as the follow-on to CLASSIC REACH providing the initial sea/shore infrastructure needed to expand assets on a Distributed SIGINT Operations (DSO) grid. Integrate Cryptologic Resource Coordinator Dashboard into DO architectural framework. Integrate shore assets and some limited afloat limited assets (focused on Carrier Strike Group (CSG) prioritization) by establishing a netted sensor framework within that CSG to deliver actionable SIGINT at all levels of war (Fleet Commanders in support of the Tactical/ Operational level of warfare) focusing on Surface Warfare and some Air Warfare. Integrate and create data exchanges for Real Time Spectrum Operations (RTSO) to organically validate own force profile in the Electromagnetic Spectrum. DO, Counter - Command, Control, Communications, Computers, Combat Systems, Intelligence, Surveillance and Reconnaissance Technology (C-C5ISRT), and EMW will be further enhanced as they integrate into the Naval Tactical Grid.

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Title: Ship's Signal Exploitation Equipment Inc F (SSEE Inc F)	10.888	7.280	7.019	0.000	7.019
Articles:	-	-	-	-	-
FY 2021 Plans: - Continue Pre-Planned Product Improvement (P3I) to provide enhanced capabilities into the Ship's Signal Exploitation Equipment (SSEE) Increment F system and its variants by continuing to develop, refine, and test new, unexplored and unexploited cyber capabilities including advanced MEDUSA applications and techniques through added signal processing capacity and data flows (details held at higher classification). - Continue integration solutions to incorporate other Navy development investments to enhance the Fleet's ability to dominate and defend cyberspace mediums and insert new technology enhancements via incremental software and hardware upgrades. - Developing and delivering electronic warfare (EW) capabilities based upon the warfighter identified FY 2021 Signals of Interest (SOIs) threats (annually updated) for integration into the SSEE Increment F systems (including its variants) and deliver as required to meet Fleet requirements. Finalize testing for the VITA 49 / VPX Next-Generation Chassis and accept delivery of the final technical data packages and apply the framework to advance the Anti-Access Area Denial (A2AD) capability development to continue to integrate specialized signal processing capabilities (including MEDUSA, ACES and SILK THREAD functionality). - Continue to develop and refine the architecture, network performance specifications, and hosting environment to bring NSAnet afloat by deploying Navy Tactical Data Network (NTDN). - Apply national cybersecurity standards and initiatives to bring advanced inter-strike group network capabilities able to operate in any environment while continuing to integrate cryptologic systems with shipboard combat systems for tightly coupled mission execution. - Continue to bring high-side fusion and battle management aids within the SSEE Family of Systems (FoS). Continue to develop documentation for system/network testing, production and installation for designated CVN installation while taking ownership of initial prototypes. - Continue development and integration capabilities able to operate in communications challenged environments to maintain cognizance of current warfighter-identified signal sets and make necessary additions and improvements to the system as required by National and Fleet stakeholders. - Continue to bring increased Sensitive Compartmented Information (SCI) compute power within the Ship's Signal Exploitation Space (SSES), the only SCI accredited space within most ships, bringing high-side fusion and battle management aids within the SSEE FoS Hosting Environment.					
FY 2022 Base Plans: - Continue P3I to provide enhanced capabilities into the SSEE Increment F system and its variants by continuing to develop, refine, and test new, unexplored and unexploited cyber capabilities including advanced Medusa					

Exhibit R-2A, RDT&E Project Justification: PB 2022 Navy		Date: May 2021
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0304785N / *ISR & INFO OPERATIONS*	**Project (Number/Name)** 2134 / *Shipboard IW Exploit*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
applications and techniques through added signal processing capacity and data flows (details held at higher classification). - Finalize integration solutions to incorporate other Navy development investments to enhance the Fleet's ability to dominate and defend cyberspace mediums and insert new technology enhancements via incremental software and hardware upgrades. - Develop and deliver EW capabilities based upon the warfighter identified FY 2022 SOIs threats (updated annually) for integration into the SSEE Increment F systems (including its variants) and deliver as required to meet Fleet requirements. - Complete delivery of the final technical data packages and apply the framework to advance the Anti-Access Area Denial (A2AD) capability development to continue to integrate specialized signal processing capabilities (including Medusa, ACES and Silk Thread functionality). - Complete the architecture, network performance specifications, and hosting environment to bring NSAnet afloat by deploying the first NTDN while applying national cybersecurity standards and initiatives to bring advanced inter-strike group network capabilities able to operate in any environment while continuing to integrate cryptologic systems with shipboard combat systems for tightly coupled mission execution. - Finalize all integration activity and test capabilities able to operate in communications challenged environments to maintain cognizance of current warfighter-identified signal sets and make necessary additions and improvements to the system as required by National and Fleet stakeholders. ***FY 2022 OCO Plans:*** N/A ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Ship's Signal Exploitation Equipment Inc F (SSEE Inc F) FY 2021 to FY 2022 decrease is a result of completing Next-Generation Chassis development in FY 2021.					
Title: Spectral	18.715	32.798	44.326	0.000	44.326
Articles:	-	-	-	-	-
FY 2021 Plans: - Spectral will continue to initiate development of new topside multifunction multi-purpose apertures to realize expanded capability to the overall Spectral system. - Spectral will continue acquisition, logistics, test planning, and contracting activities and achieve its Milestone B acquisition decision, while continuing development and engineering of advanced IW/EW capabilities. This enables immediate Navy integration and exercise of front-loaded, prioritized capabilities including Next-Generation MEDUSA development to counter specifically identified Signals of Interest, adaptive mission					

Exhibit R-2A, RDT&E Project Justification: PB 2022 Navy		Date: May 2021
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
tailoring, system scalability and interfaces and subsystems to reach EDMs or release capability for fielding via system capability drops as well as continue to develop below-deck host open system architectures and interfaces (including VPX and VITA 49.2 standards implementation) and mission module integration to solve modern signal sets (e.g. more complex wider bandwidth, shorter duration, low probability of detect/low probability of intercept), automation to improve operator and maintainer workflows and well as improve overall installation efficiencies. - Continue to build, assemble, and integrate hardware to support the necessary lab-based and Development Operations environments that will quickly engineer and integrate capability into the software baseline as well as develop advanced or next-generation Signals Intelligence (SIGINT), Cyber, Information Operations (IO), or Electronic Warfare (EW) capabilities beyond or in excess of performance requirements scope of currently fielded systems. This includes having virtual software development environment for enhanced configuration management through Web-based services and applications for a robust, open, modular development environment. - Continue Engineering Design Models (EDM) and Capability Drop development focusing on engineering efforts outlined in Fleet Integrated Priority and Integrated Priority Capability lists. The EDM will establish the initial software and hardware baseline configurations and common core capabilities associated with the next generation system, including enhanced requirements to integrate the systems with Ship's Combat and Intelligence Systems to support Integrated Fires and Electromagnetic Maneuver Warfare and the capabilities able to operate in communications challenged environments in the operating frequency bands outside that of fielded systems.					
FY 2022 Base Plans: - In FY22, SPECTRAL will leverage Engineering Design Model (EDM) early system component prototypes and continue third-party capability development efforts including advanced EA capabilities, to continue full afloat system Production Representative Articles (PRA) and Capability Drop development integration with PMP, and engineer hardware as part of PRA below-deck design solution to streamline installation timelines and costs by delivering unique hardware solutions required to fit in existing hatches and passageways to minimize size and build on scalability to maximize installation efficiency. - Continue acquisition, logistics, test planning, and contracting activities toward PRA (Ashore), while continuing development and engineering of advanced IW/EW capabilities including continued SEWIP integration efforts and initial testing. These capabilities include integration of Next-Generation Medusa to counter specifically identified SOIs and development of below-deck host open system architecture (including VPX and VITA 49.2 standards implementation) that can be rapidly delivered to improve existing fielded systems and be incorporated into the Spectral PRA baseline.					

Exhibit R-2A, RDT&E Project Justification: PB 2022 Navy		Date: May 2021
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0304785N / *ISR & INFO OPERATIONS*	**Project (Number/Name)** 2134 / *Shipboard IW Exploit*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
- Continue development efforts to update and deliver new mission modules to capture modern signal sets (e.g., more complex wider bandwidth, shorter duration, low probability of detect/low probability of intercept) which will be incrementally delivered to the Fleet through capability drops. - Continue to build the Continuous Integration/Continuous Deliver (CI/CD) pipeline to improve modularity, automation, and remote delivery for future Capability Drops which will improve overall installation efficiency. - Develop virtual software development environment for enhanced configuration management through Web-based services and applications for a robust, open, modular software development environment. - In addition to Collaborative Development Environment (CDE) efforts, Spectral will conduct extensive ongoing systems engineering reviews to include Critical Design Review (CDR) and cybersecurity testing of the prime mission integrator's PRA system design. - Continue development and engineering for Spectral's Advanced RF aperture solutions and Active Electronically Steered Array (AESA) topside and execute engineering design in topside maritime antennas to enable execution of full functionality and scope of Spectral requirements. - Continue development of new topside multi-mission apertures to realize expanded capability to the overall Spectral system. ***FY 2022 OCO Plans:*** N/A ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Spectral FY 2021 to FY 2022 increase supports multiple Radio Frequency (RF) aperture development and interface efforts, as well as topside antenna development to meet multi-mission needs, shore and ship testing, and to complete studies, development, and integration to realize increased frequency band operability. In addition, funds will be used to procure additional Production Representative Article (PRA) equipment and up front, long-lead item topside components for two base PRA systems. Lastly, the increase of funding will focus on identifying and validating a Continuous Integration/Continuous Deliver (CI/CD) pipeline on the Sensitive Compartmented Information (SCI) enclave.					
Title: Ship's Signal Exploitation Equipment Modifications (SSEE Modifications)	5.328	4.031	1.956	0.000	1.956
Articles:	-	-	-	-	-
FY 2021 Plans: - Continue hardware and software development to bring advanced capabilities to the Fleet for simultaneous detection, collection, processing, electronic warfare and display of communication intelligence data from hostile, high threat and adversary platforms in select extended frequency ranges not prosecuted today.					

Exhibit R-2A, RDT&E Project Justification: PB 2022 Navy		Date: May 2021
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0304785N / *ISR & INFO OPERATIONS*	**Project (Number/Name)** 2134 / *Shipboard IW Exploit*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
- Continue development to integrate designs bringing advanced signal processing to the Next Generation-Graywing capability enabling emergent signal threat acquisition and exploitation while migrating the design to meet future industry backplane standards to align with Common Core Architecture (CCA) strategies. ***FY 2022 Base Plans:*** - Continue hardware and software development to bring advanced capabilities to the Fleet for simultaneous detection, collection, processing, electronic warfare and display of communication intelligence data from hostile, high threat and adversary platforms in select extended frequency ranges not prosecuted today. - Will complete development to integrate designs bringing advanced signal processing to the Next Generation-Graywing capability, enabling emergent signal threat acquisition and exploitation while migrating the design to meet future industry backplane standards to align with CCA strategies. -Will complete Anti-Access Area Denial (A2AD) testing and integration into the host system. ***FY 2022 OCO Plans:*** N/A ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Ship's Signal Exploitation Equipment Modifications (SSEE Modifications) 2021 to FY 2022 decrease results from completion of VPX integration and testing to support Common Core Architecture (CCA) strategies and Anti-Access Area Denial (A2AD) testing and integration into the host system in FY 2022.					
Title: Integrated Communications and Data Systems Increment II (ICADS Inc II) ***Articles:*** ***FY 2021 Plans:*** - ICADS Increment II will continue to finalize preparations for the Development Test (DT) and Operational Assessment (OA) event, take receipt of the initial EDM and conduct the DT/OA events. - Continue to perform the initial and critical Program Technical Reviews (PTR) for the Production Representative Systems (PRS). - Continue with all necessary acquisition, systems engineering, and logistics development via the Middle Tier Acquisition program. ***FY 2022 Base Plans:*** - Complete develop of Increment II PRSs focusing on the finalizing the integration of both the enhanced signals capability as well as integration of the advanced Radio Frequency (RF) option. - Complete Development and Operation Test of the Increment II PRS.	8.300 -	6.095 -	1.548 -	0.000 -	1.548 -

Exhibit R-2A, RDT&E Project Justification: PB 2022 Navy		Date: May 2021
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
- Continue planning and ship installation preparation including completing final Technical Design Packages and installation drawing library for shipboard integration. ***FY 2022 OCO Plans:*** N/A ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Integrated Communications and Data Systems Increment II (ICADS Inc II) FY 2021 to FY 2022 decrease is attributed completion of most major development work including baseline system development and Radio Frequency (RF) aperture integration.					
Title: Horizon and Distributed Operations (DO)	0.000	0.000	18.700	0.000	18.700
Articles:	-	-	-	-	-
FY 2021 Plans: N/A ***FY 2022 Base Plans:*** - There are no new starts associated with this program; Horizon and Distributed Operations (DO) is an existing development and engineering effort intended to fulfil Department of Defense (DoD) level capability requirement voids for shipboard cryptologic systems including Ship's Signal Exploitation Equipment (SSEE) and Spectral. Funding is being broken out in FY 2022 for visibility. - Transition Department of Defense (DoD) Horizon capability into the maritime domain through high-side fusion and initial Battle Management Aids (BMA) considered vital to plan and execute offensive and defensive IW in the EM spectrum and physical space. - Bring in early phase development of the DO capability as the follow-on to CLASSIC REACH providing the initial sea/shore infrastructure needed to expand assets on a Distributed Signals Intelligence (SIGINT) Operations (DSO) grid. - Integrate Cryptologic Resource Coordinator Dashboard into DO architectural framework. - Integrate shore assets and some limited afloat assets focused on Carrier Strike Group (CSG) prioritization by establishing a netted sensor framework within that CSG to deliver actionable SIGINT at all levels of war (Fleet Commanders in support of the Tactical/ Operational level of warfare focusing on Surface Warfare and some Air Warfare). - Integrate and create data exchanges for Real Time Spectrum Operations (RTSO) to organically validate own force profile in the Electromagnetic Spectrum. DO and Electromagnetic Maneuver Warfare (EMW) will be further					

Exhibit R-2A, RDT&E Project Justification: PB 2022 Navy		Date: May 2021
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
enhanced as they integrate into the Naval Tactical Grid and have meaningful, relevant capabilities to maintain the tactical maritime advance. Details held at higher classification. ***FY 2022 OCO Plans:*** N/A ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Horizon and Distributed Operations (DO) FY 2021 to FY 2022 increase is to deliver Horizon Capabilities through accelerated Distributed Ops (DO).					
Accomplishments/Planned Programs Subtotals	43.231	50.204	73.549	0.000	73.549

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
• OPN / 2360: *Shipboard IW Exploit*	186.814	231.072	261.735	-	261.735	-	-	-	-	-	-

Remarks

D. Acquisition Strategy

The Shipboard Information Warfare (IW) family of systems are incremental acquisition programs, which are required to rapidly develop and integrate new technologies and associated new operational capabilities to pace both known and future signal threats and transition as Pre-Planned Product Improvement (P3I) upgrades into the system's open systems architecture hardware/software configurations and deliver to fielded systems as required to satisfy Fleet needs. Program funding incorporates P3I, new Commercial-Off-The-Shelf (COTS) or Government-Off-the-Shelf (GOTS) based technologies, and software into the existing systems to address Fleet needed priorities, capability gaps or combat known threats and utilizes various competitive multiple award and single source contract activities including Prime Mission Product to develop third-party hardware and software solutions.

Under the ICADS Middle-Tier Acquisition (MTA) program designation for Increment II and per their Acquisition Decision Authority (ADA - 19 June 2019), the Rapid Prototyping Strategy includes procuring (3) units each year beginning in FY21. Authorizations through FY22 are based upon a favorable Rapid Prototyping Review (RPR) Decision to procure additional units. FY23 transitions away from the LRIP procurements to a more stable, recurring, traditional Full Rate Production Schedule and moves away from MTA.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Navy			Date: May 2021
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0304785N / *ISR & INFO OPERATIONS*	Project (Number/Name) 2134 / *Shipboard IW Exploit*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Product Development Prior Years	Various	Various : Various	291.496	0.000		0.000		0.000		-		0.000	-	-	-
Software Development SSEE	C/CPFF	Classified Contracts : Classified Contracts	0.000	8.971	Dec 2019	6.551	Dec 2020	4.978	Dec 2021	-		4.978	-	-	-
System Engineering SSEE	C/CPFF	Classified Contracts : Classified Contracts	0.000	0.943	Dec 2019	0.867	Dec 2020	0.719	Dec 2021	-		0.719	-	-	-
Software Development SSEE	WR	NIWC PAC : San Diego, CA	0.000	0.734	Nov 2019	0.489	Oct 2020	0.405	Oct 2021	-		0.405	-	-	-
Hardware Development SSEE	WR	NIWC PAC : San Diego, CA	0.000	0.569	Nov 2019	0.373	Oct 2020	0.310	Oct 2021	-		0.310	-	-	-
Software Development SSEE	WR	NRL : Washington, DC	0.000	2.698	Nov 2019	1.552	Oct 2020	1.337	Oct 2021	-		1.337	-	-	-
Hardware Development Spectral	C/CPFF	Classified Contracts : Classified Contracts	0.000	8.033	Dec 2019	18.876	Dec 2020	25.272	Dec 2021	-		25.272	-	-	-
Software Development Spectral	C/CPAF	Classified Contracts : Classified Contracts	0.000	1.685	Dec 2019	3.593	Dec 2020	8.087	Dec 2021	-		8.087	-	-	-
System Engineering Spectral	WR	NIWC PAC : San Diego, CA	0.000	3.322	Nov 2019	4.284	Oct 2020	4.550	Oct 2021	-		4.550	-	-	-
Requirements Analysis Spectral	C/CPFF	Classified Contracts : Classified Contracts	0.000	0.418	Dec 2019	0.444	Dec 2020	0.471	Dec 2021	-		0.471	-	-	-
System Engineering Spectral	C/CPFF	Classified Contracts : Classified Contracts	0.000	3.785	Dec 2019	4.038	Dec 2020	4.287	Dec 2021	-		4.287	-	-	-
Hardware Development ICADS	C/CPFF	Classified Contracts : Classified Contracts	0.000	5.190	Dec 2019	3.178	Dec 2020	0.798	Dec 2021	-		0.798	-	-	-
Software Development ICADS	WR	NIWC LANT : Charleston, SC	0.000	1.250	Dec 2019	1.172	Oct 2020	0.301	Oct 2021	-		0.301	-	-	-
System Engineering ICADS	C/CPFF	Classified Contracts : Classified Contracts	0.000	1.460	Dec 2019	1.407	Dec 2020	0.362	Dec 2021	-		0.362	-	-	-
Hardware Development Horizon/Dist Ops	C/CPFF	Classified Contracts : Classified Contracts	0.000	0.000		0.000		12.616	Dec 2021	-		12.616	-	-	-
Software Development Horizon/ Dist Ops	C/CPFF	Classified Contracts : Classified Contracts	0.000	0.000		0.000		6.084	Dec 2021	-		6.084	-	-	-
		Subtotal	291.496	39.058		46.824		70.577		-		70.577	-	-	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Navy			Date: May 2021
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Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Support Prior Years	Various	Various : Various	29.574	0.000		0.000		0.000		-		0.000	-	-	-
System Eng Mgmt SSEE	C/CPFF	NIWC LANT/PAC : Various	0.000	0.296	Dec 2019	0.279	Oct 2020	0.232	Oct 2021	-		0.232	-	-	-
		Subtotal	29.574	0.296		0.279		0.232		-		0.232	-	-	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Test & Evaluation Prior Years	Various	Various : Various	27.582	0.000		0.000		0.000		-		0.000	-	-	-
Developmental Test & Evaluation ICADS	C/BA	NIWC LANT/PAC : Various	0.000	0.400	Nov 2019	0.338	Oct 2020	0.087	Oct 2021	-		0.087	-	-	-
Developmental Test & Evaluation SSEE	C/CPFF	Classified Contracts : Classified Contracts	0.000	0.795	Dec 2019	0.476	Dec 2020	0.394	Dec 2021	-		0.394	-	-	-
Developmental Test & Evaluation SSEE	WR	NIWC LANT/PAC : Various	0.000	1.210	Nov 2019	0.724	Oct 2020	0.600	Oct 2021	-		0.600	-	-	-
		Subtotal	27.582	2.405		1.538		1.081		-		1.081	-	-	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Management Prior Years	Various	Various : Various	41.312	0.000		0.000		0.000		-		0.000	-	-	-
Acqusition Management Spectral	C/CPFF	BAH : San Diego, CA	0.000	1.472	Nov 2019	1.563	Oct 2020	1.659	Oct 2021	-		1.659	-	-	-
		Subtotal	41.312	1.472		1.563		1.659		-		1.659	-	-	N/A

	Prior Years	FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	389.964	43.231		50.204		73.549		-		73.549	-	-	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Navy			Date: May 2021
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	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Navy		Date: May 2021
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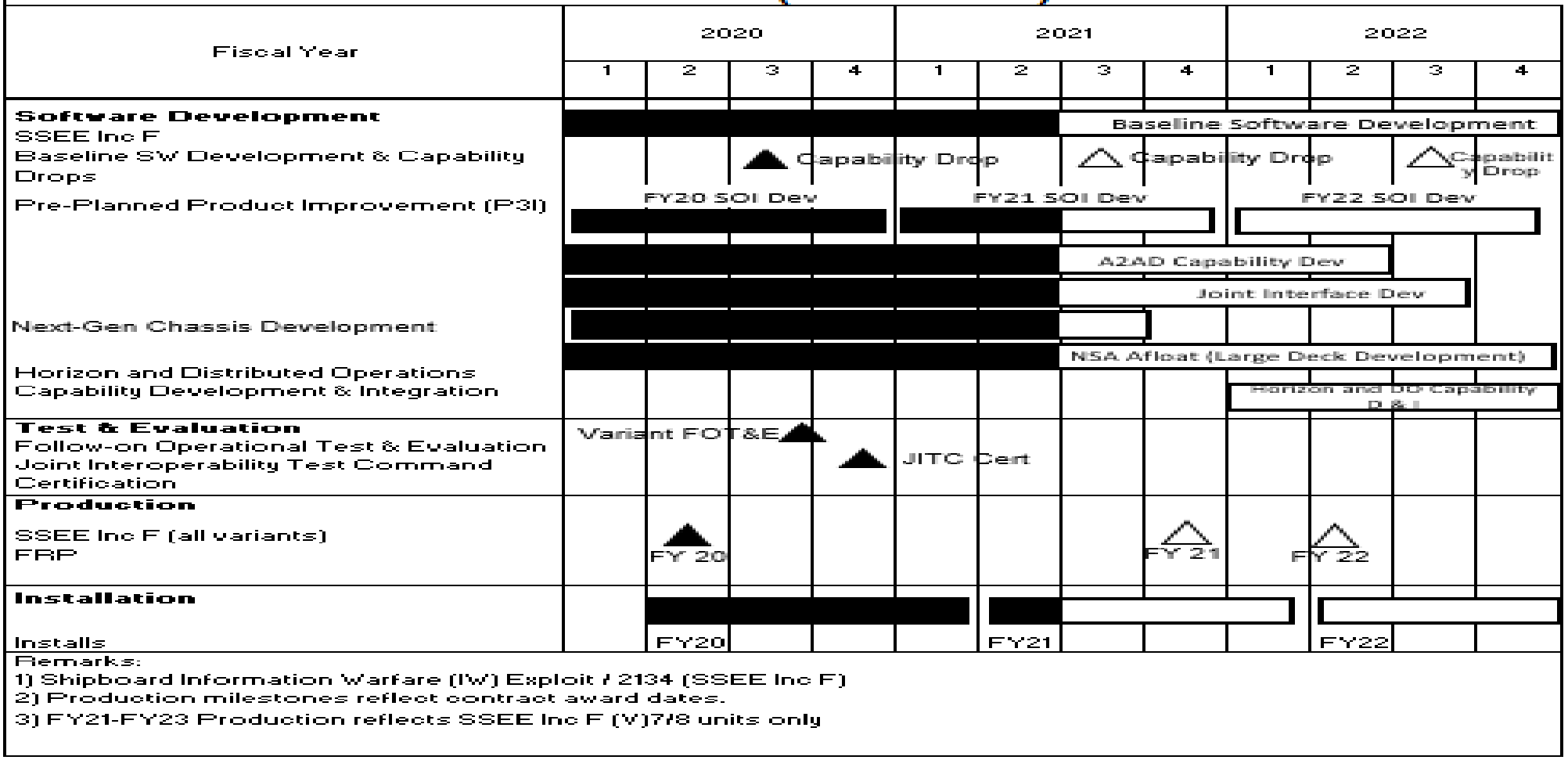
SSEE Inc F (all variants)



Remarks:
1) Shipboard Information Warfare (IW) Exploit / 2134 (SSEE Inc F)
2) Production milestones reflect contract award dates.
3) FY21-FY23 Production reflects SSEE Inc F (V)7/8 units only

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Navy		Date: May 2021
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Spectral

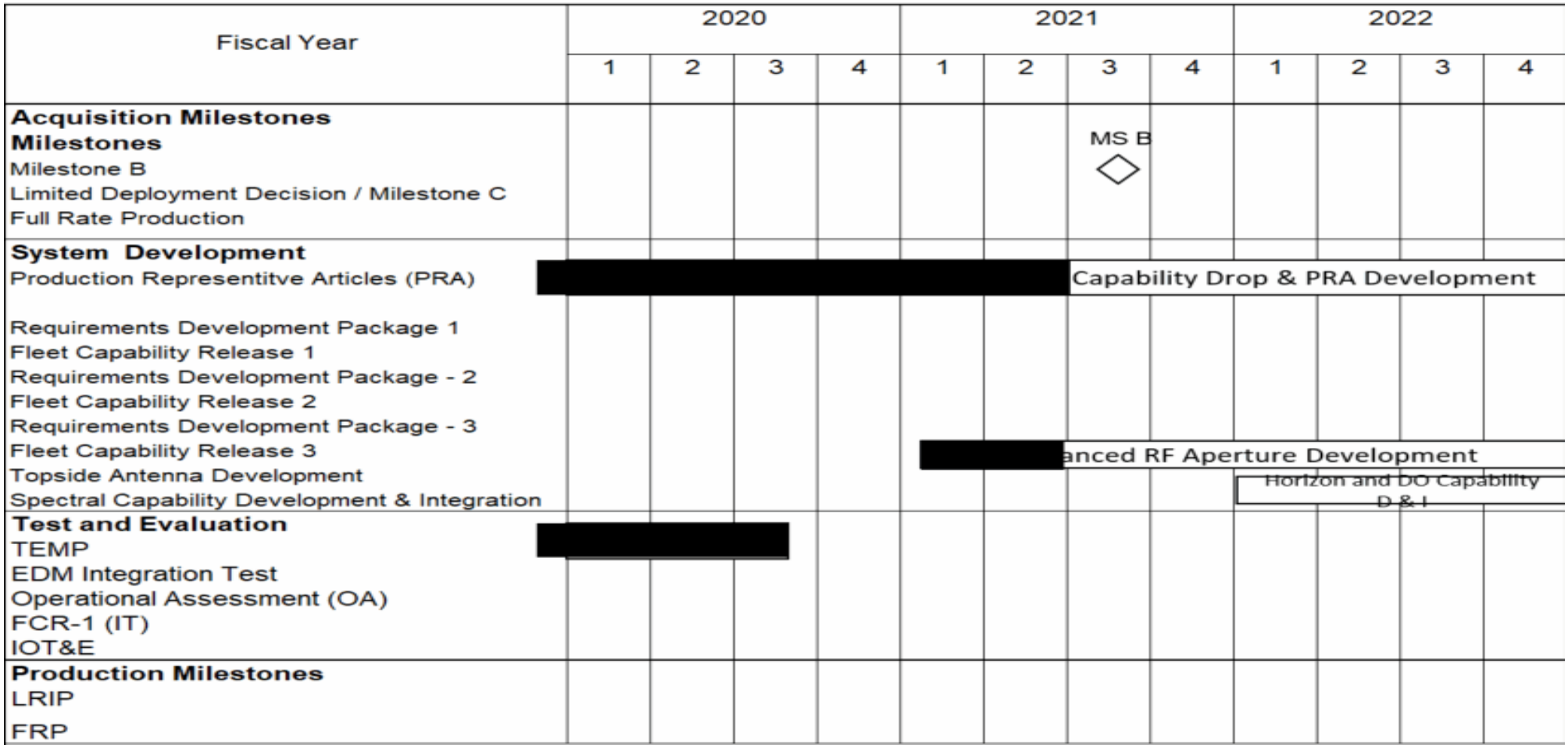
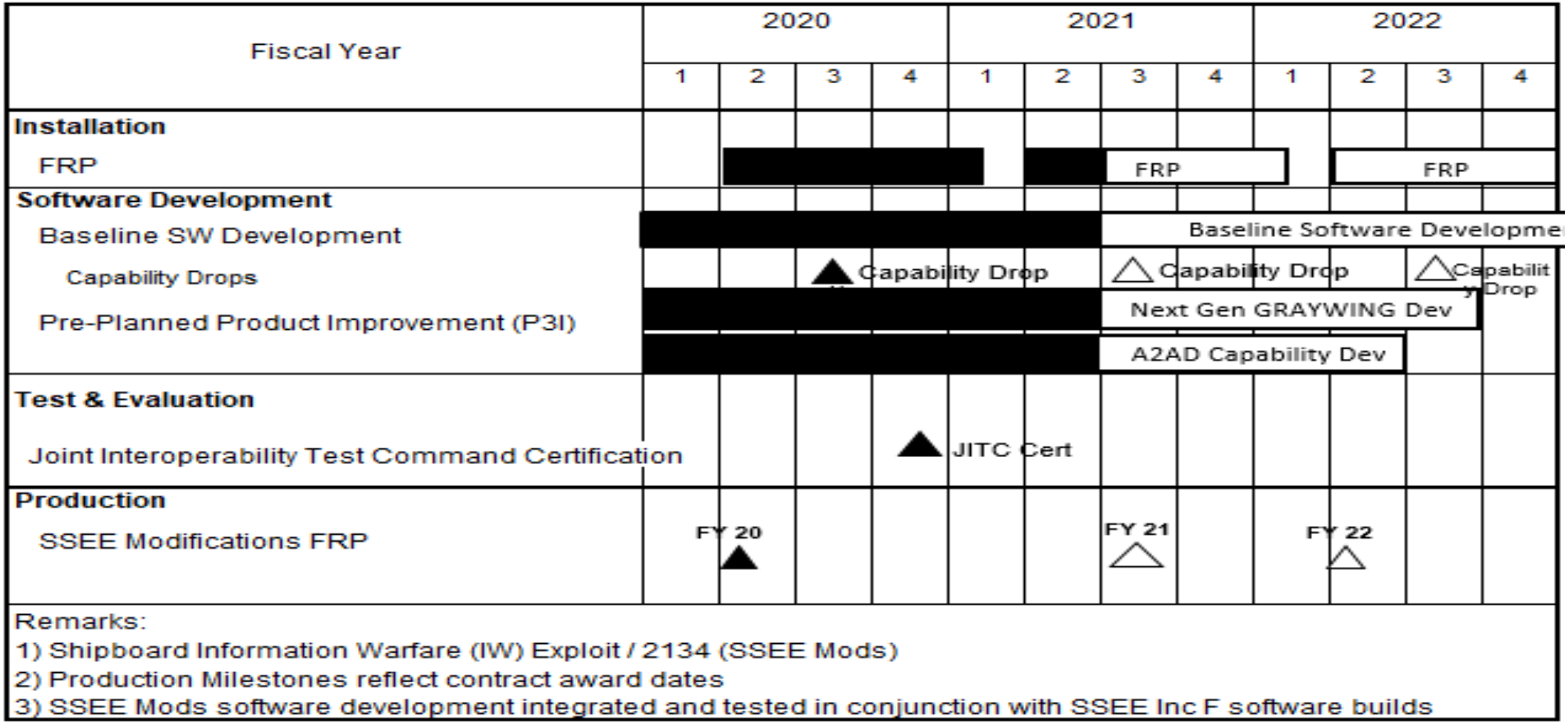


Exhibit R-4, RDT&E Schedule Profile: PB 2022 Navy		Date: May 2021
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0304785N / *ISR & INFO OPERATIONS*	**Project (Number/Name)** 2134 / *Shipboard IW Exploit*

SSEE Modifications



Remarks:
1) Shipboard Information Warfare (IW) Exploit / 2134 (SSEE Mods)
2) Production Milestones reflect contract award dates
3) SSEE Mods software development integrated and tested in conjunction with SSEE Inc F software builds

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Navy		Date: May 2021
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ICADS Increment II

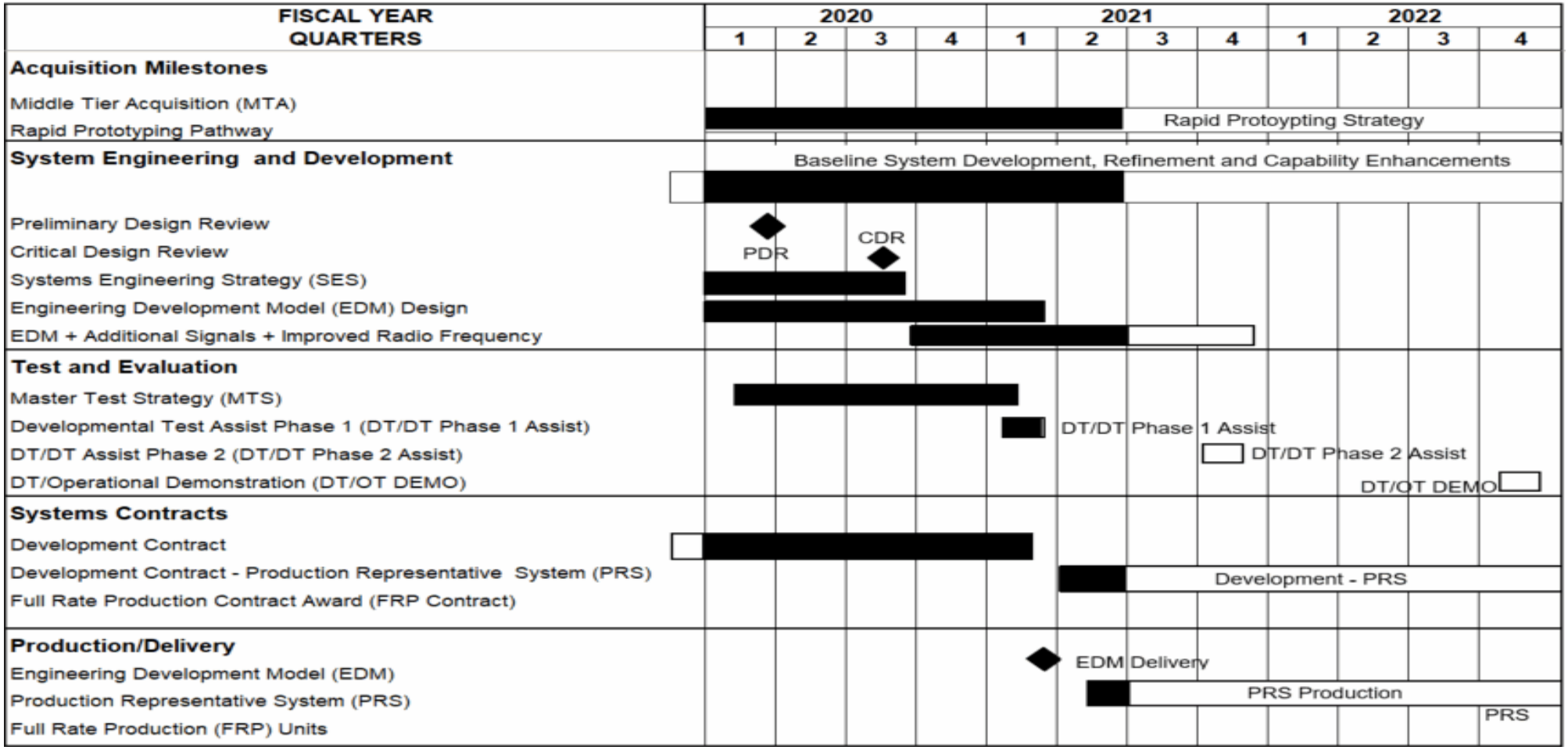

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Navy		Date: May 2021
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Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
SSEE Inc F				
Test & Evaluation: Inc F - Joint Integration Test Command (JITC) Certification (FY20)	4	2020	4	2020
Test & Evaluation: Inc F - Follow On Test and Evaluation (FOT&E)	3	2020	3	2020
Production: Inc F - FY20 FRP Production Milestone	2	2020	2	2020
Production: Inc F - FY21 FRP Production Milestone	4	2021	4	2021
Production: Inc F - FY22 FRP Production Milestone	2	2022	2	2022
Software Development: Inc F - Baseline Software Development	1	2020	4	2022
Software Development: Inc F - FY20 Capability Drop	3	2020	3	2020
Software Development: Inc F - FY21 Capability Drop	3	2021	3	2021
Software Development: Inc F - FY22 Capability Drop	3	2022	3	2022
Software Development: Inc F - FY20 SOI Development	1	2020	4	2020
Software Development: Inc F - FY21 SOI Development	1	2021	4	2021
Software Development: Inc F - FY22 SOI Development	1	2022	4	2022
Software Development: Inc F - A2AD Capability Development	1	2020	2	2022
Software Development: Inc F - Joint Interface Development	1	2020	3	2022
Software Development: Inc F - Next-Gen Chassis Development	1	2020	3	2021
Software Development: Inc F - NSA Afloat (Large Deck Development)	1	2020	4	2022
Software Development: Inc F - Horizon/Distributed Operations Capability Dev & Intgr	1	2022	4	2022
Installation: Inc F - FRP Installation FY20	2	2020	1	2021
Installation: Inc F - FRP Installation FY21	2	2021	1	2022
Installation: Inc F - FRP Installation FY22	2	2022	4	2022
Spectral				
Spectral - Milestone B	3	2021	3	2021

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Navy		Date: May 2021
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	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Spectral - EDM Development /PRA Development	1	2020	4	2022
Spectral - Advanced RF Aperture Development	1	2021	4	2022
Spectral - Horizon and Distributed Operations Capability Development & Integration	1	2022	4	2022
Spectral - Test Evaluation Master Plan (TEMP)	1	2020	3	2020
SSEE Modifications				
SSEE Modifications - FRP Installation FY20	2	2020	1	2021
SSEE Modifications - FRP Installation FY21	2	2021	1	2022
SSEE Modifications - FRP Installation FY22	2	2022	4	2022
SSEE Modifications - Baseline Software Development	1	2020	4	2022
SSEE Modifications - FY20 Capability Drop	3	2020	3	2020
SSEE Modifications - FY21 Capability Drop	3	2021	3	2021
SSEE Modifications - FY22 Capability Drop	3	2022	3	2022
SSEE Modifications - Next Generation - Graywing Development	1	2020	3	2022
SSEE Modifications - A2AD Capability Development	1	2020	2	2022
SSEE Modifications - Joint Interoperability Test Center Certification (JITC Cert)	4	2020	4	2020
SSEE Modifications - FY20 FRP Production Modification	2	2020	2	2020
SSEE Modifications - FY21 FRP Production Modification	3	2021	3	2021
SSEE Modifications - FY22 FRP Production Modification	2	2022	2	2022
ICADS Inc II				
Acquisition milestones: Rapid Prototyping Review FY21	2	2021	2	2021
Acquisition milestones: Rapid Prototyping Review FY22	2	2022	2	2022
Acquisition milestones: ICADS Inc II - Rapid Prototyping, Strategy	1	2020	4	2022
Test & Evaluation: ICADS Inc II - Development Test Assist Phase 1 (DT/DT Assist Phase 1)	1	2021	1	2021
Test & Evaluation: ICADS Inc II - Development Test Assist Phase 2 (DT/DT Assist Phase 2)	4	2021	4	2021

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Navy		Date: May 2021
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0304785N / *ISR & INFO OPERATIONS*	**Project (Number/Name)** 2134 / *Shipboard IW Exploit*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Test & Evaluation: ICADS Inc II - Development Test/Operational Demonstration (DT/OT DEMO)	4	2022	4	2022
Test & Evaluation: ICADS Inc II - Master Test Strategy (MTS)	1	2020	1	2021
Sys Eng / Development: ICADS Inc II - Baseline System Development, Refinement and Capability Enhancements	1	2020	4	2022
Sys Eng / Development: ICADS Inc II - Preliminary Design Review (PDR)	1	2020	1	2020
Sys Eng / Development: ICADS Inc II - Critical Design Review (CDR)	3	2020	3	2020
Sys Eng / Development: ICADS Inc II - Systems Engineering Strategy	1	2020	3	2020
Sys Eng / Development: ICADS Inc II - EDM + Additional Signals + Improved Radio Frequency	3	2020	4	2021
Sys Eng / Development: ICADS Inc II - EDM Design	1	2020	1	2021
System Contracts: ICADS Inc II - Development Contract	1	2020	1	2021
System Contracts: ICADS Inc II - Development Contract - Production Representative System	2	2021	4	2022
Production/Delivery Increment II: ICADS Inc II - EDM Delivery	1	2021	1	2021
Production/Delivery Increment II: ICADS Inc II - Production Representative Systems (PRS) Production	2	2021	4	2022

Exhibit R-2A, RDT&E Project Justification: PB 2022 Navy			Date: May 2021
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0304785N / *ISR & INFO OPERATIONS*	Project (Number/Name) 2174 / *Distributed Common Ground System-Navy (DCGS-N)*	

COST ($ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
2174: *Distributed Common Ground System-Navy (DCGS-N)*	0.000	0.583	0.592	0.645	-	0.645	-	-	-	-	-	-
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Distributed Common Ground System (DCGS) is a cooperative effort between the services, agencies, and the Department of Defense (DoD) to provide systems capable of receiving, processing, exploiting, and disseminating data from airborne and national reconnaissance platforms. DCGS - Navy (DCGS-N) is the Navy instance of the Under Secretary of Defense, Intelligence (USD (I)) DCGS Family of Systems (FoS). DCGS-N system fulfills a critical mission set Afloat and Ashore. DCGS-N processes and exploits tactical and Imagery Intelligence (IMINT) and Signal Intelligence (SIGINT), facilitates precision target geopositioning, mensuration, and imagery capabilities, integrates national IMINT requirements and processing capabilities from the National Geospatial-Intelligence Agency (NGA), and shares Intelligence, Surveillance, Reconnaissance, and Targeting (ISR&T) and Command and Control information via the DCGS Integration Backbone (DIB), Defense Intelligence Information Enterprise (DI2E), and Net-Centric Enterprise Services (NCES) standards with a wide range of customers. The DCGS-N program conducts research and assessments of tactically relevant, emerging technologies program insertion to ensure superiority in the intelligence domain.

DCGS-N Increment 1 is the Navy's current fielded DCGS ISR&T program of record. The system is actively used by Navy force level ships and shore sites in support of the mission.

Intelligence Carry-On Program (ICOP) provides Indications and Warnings (I&W), battlespace awareness/visualization, pattern of life analysis, Full-Motion Video (FMV) and Intelligence Surveillance and Reconnaissance (ISR) Processing, Exploitation and Dissemination (PED) capabilities in support of Unit-Level Navy surface (CG, DDG, and LPD classes) and expeditionary operations. The ICOP system includes a three-eyed ruggedized workstation that serves as a powerful afloat edge computing device that is capable of operating on all three security domains (NIPR, SIPR and JWICs) and an antenna/receiver set (called Communications Module 3 - CM3) that is used to ingest, process and exploit airborne sensor data. In addition to supporting multi-intelligence capabilities, ICOP/CM3 provides an end-to-end ISR PED architecture that includes processing organic shipboard camera systems to support Navy-wide Operational Task (OPTASK) Visual Information (Strategic Communications - "First to the Truth," pattern of life analysis and use of force/rules of engagement decisions).

In FY 2022, ICOP will finalize and baseline the system design for the SCI ICOP Mission Module. In addition, ICOP engineering team will commence system engineering efforts to start containerization of the ICOP software stack which will allow an additional variant to be employed on platforms that have severe space constraints such as LCS and DDG 1000 platforms. ICOP will roll out horizon one capabilities of the CBM effort which include user dashboard, near-real time diagnostics reporting and prognostic services. In addition, ICOP will continue integration testing with several NAVAIR platforms and capabilities as part of the Digital Warfare Office (DWO) sponsored Information Warfare FoS initiative.

Exhibit R-2A, RDT&E Project Justification: PB 2022 Navy		Date: May 2021
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0304785N / *ISR & INFO OPERATIONS*	**Project (Number/Name)** 2174 / *Distributed Common Ground System-Navy (DCGS-N)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Title: Distributed Common Ground System-Navy (DCGS-N) Increment 1	0.133	0.141	0.000	0.000	0.000
Articles:	-	-	-	-	-
FY 2021 Plans: - Continue modernization, integration and regression testing required to remain aligned with emerging national imagery standards for tech refreshes and End-of-Life Upgrades. ***FY 2022 Base Plans:*** N/A ***FY 2022 OCO Plans:*** N/A ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Distributed Common Ground System - Navy (DCGS-N) Inc 1 decrease from FY2021 to FY2022 due to the close out of Common Geopositioning Services (CGS) DCGS-N Inc 1 development effort. Funding transferred to Intelligence Carry-On Program (ICOP)to start containerization of the ICOP software stack.					
Title: Intelligence Carry-On Program (ICOP)	0.450	0.451	0.645	0.000	0.645
Articles:	-	-	-	-	-
FY 2021 Plans: - Continue integration testing will occur on both the Secure Internet Protocol Router (SIPR) Secret and Joint Worldwide Intelligence Communications System (JWICS) Sensitive Compartmented Information (SCI) domains to ensure that the ICOP program is properly aligned to future Navy technologies. - In FY 2021, ICOP will continue development, integration and testing efforts of the ICOP mission module concept and will target a Fleet demonstration/exercise such as NAVY TACTICAL GRID or TRIDENT WARRIOR to test a prototype system. - In addition, integration testing with future Navy/Joint technologies to include both airborne and surface platforms will continue. ***FY 2022 Base Plans:*** - Finalize and baseline the system design for the SCI ICOP Mission Module. - Commence system engineering efforts to start containerization of the ICOP software stack which will allow an additional variant to be employed on platforms that have severe space constraints such as LCS and DDG 1000 platforms.					

Exhibit R-2A, RDT&E Project Justification: PB 2022 Navy		Date: May 2021
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0304785N / *ISR & INFO OPERATIONS*	**Project (Number/Name)** 2174 / *Distributed Common Ground System-Navy (DCGS-N)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
- Roll out horizon one capabilities of the CBM effort which include user dashboard, near-real time diagnostics reporting and prognostic services. - Continue integration testing with several NAVAIR platforms and capabilities as part of the Digital Warfare Office (DWO) sponsored Information Warfare Family of Systems initiative. - Incorporate FADE integration with the Intelligence Carry-On Program (ICOP) baseline - Sensitive Compartmented Information (SCI) ICOP mission module development ISO Tactical Integrated Fires Element (TIFE) Afloat efforts - Increase Condition-Based Maintenance Plus (CBM+) SBIR Phase III contract scheduled to be awarded to Charles River Analytics in FY22 ***FY 2022 OCO Plans:*** N/A ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Intelligence Carry-On Program (ICOP) increase from FY2021 to FY2022 will start containerization of the ICOP software stack which will allow an additional variant to be employed on platforms that have severe space constraints such as LCS and DDG 1000 platforms. In addition, incorporate FADE integration with the ICOP baseline, as well as SCI ICOP mission module development ISO TIFE Afloat efforts, and increase Condition-Based Maintenance Plus (CBM+) SBIR Phase III contract scheduled to be awarded to Charles River Analytics in FY22.					
Accomplishments/Planned Programs Subtotals	0.583	0.592	0.645	0.000	0.645

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
• OPN/2914: *Distributed Common Ground System-Navy (DCGS-N)*	14.942	18.872	16.691	-	16.691	-	-	-	-	-	-

Remarks

D. Acquisition Strategy

Distributed Common Ground System-Navy (DCGS-N) programs utilize mature Commercial-Off-The-Shelf (COTS) and Governmental-Off-The-Shelf (GOTS) capabilities. The Navy adapts and integrates these capabilities and ensures interoperability with the DCGS Integration Backbone (DIB) standards and Defense Intelligence

Exhibit R-2A, RDT&E Project Justification: PB 2022 Navy		Date: May 2021
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0304785N / *ISR & INFO OPERATIONS*	**Project (Number/Name)** 2174 / *Distributed Common Ground System-Navy (DCGS-N)*

Information Enterprise (DI2E) policies. Integration of DCGS-N Increment 1 components has transitioned from Government-led to Industry-led based on the award of DCGS-N Increment 1 Prime Mission Product (PMP) contract.

Intelligence Carry-On Program (ICOP) will continue to implement a cross-decking methodology that incorporates a two phased delivery, a permanent foundation kit which supports carry-on equipment (rotatable pool of assets) to include workstation and Communications Module 3 (CM3) antenna / receiver set. This methodology supports speed-to-fleet principles. Sensitive Compartmented Information (SCI) ICOP Mission Module will employ the same cross-decking methodology.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Navy		Date: May 2021
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0304785N / *ISR & INFO OPERATIONS*	**Project (Number/Name)** 2174 / *Distributed Common Ground System-Navy (DCGS-N)*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
ICOP Development	WR	NIWC PAC : San Diego, CA	0.000	0.450	Oct 2019	0.451	Oct 2020	0.495	Oct 2021	-		0.495	-	-	-
DCGS-N (Inc 1) Development	Various	Various : Various	0.000	0.133	Jan 2020	0.141	Jan 2021	0.000	Jan 2022	-		0.000	-	-	-
ICOP CBM+	SS/IDIQ	Charles River Analytics : Cambridge, MA	0.000	0.000		0.000		0.150	Nov 2021	-		0.150	-	-	-
		Subtotal	0.000	0.583		0.592		0.645		-		0.645	-	-	N/A

	Prior Years	FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.583		0.592		0.645		-		0.645	-	-	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Navy		Date: May 2021
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0304785N / *ISR & INFO OPERATIONS*	**Project (Number/Name)** 2174 / *Distributed Common Ground System-Navy (DCGS-N)*

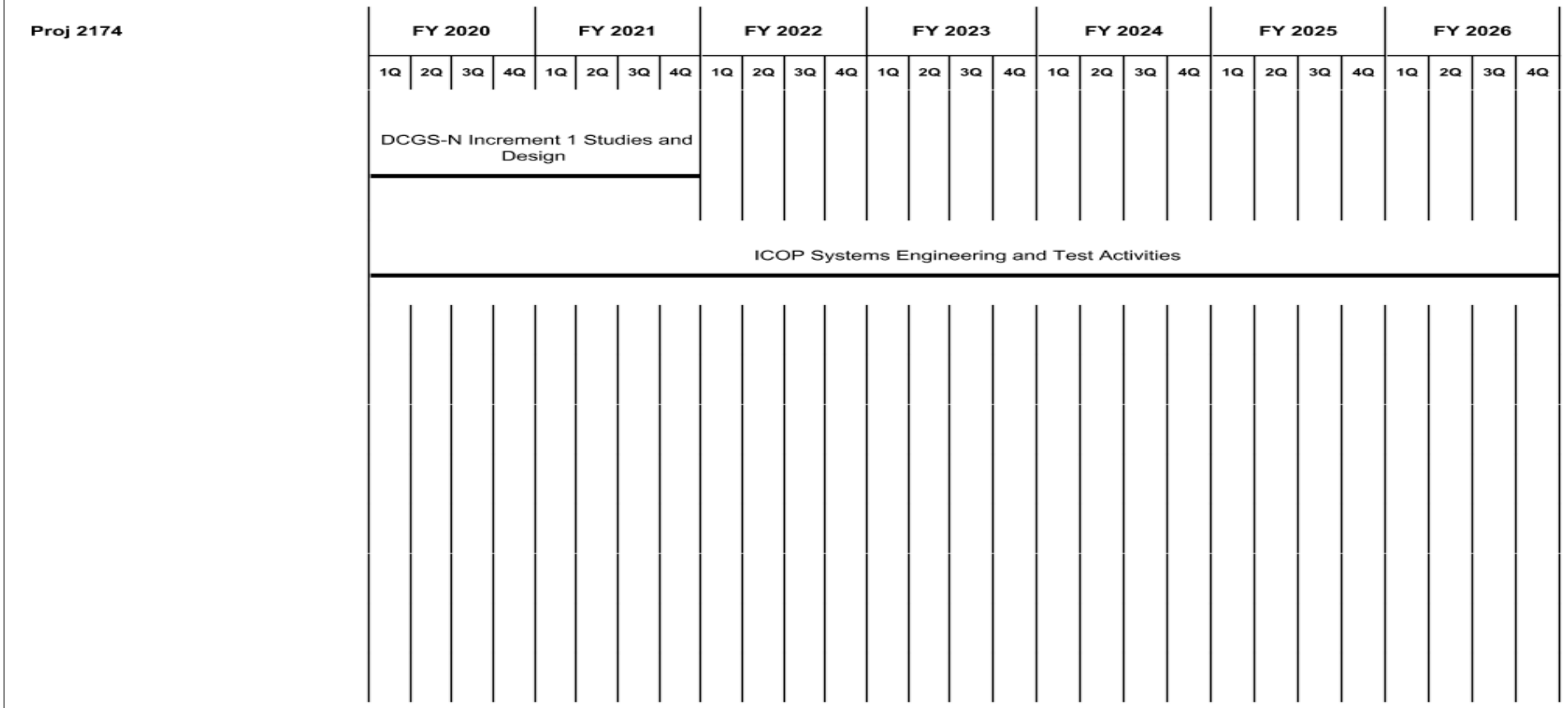

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Exhibit R-4A, RDT&E Schedule Details: PB 2022 Navy		Date: May 2021
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0304785N / *ISR & INFO OPERATIONS*	**Project (Number/Name)** 2174 / *Distributed Common Ground System-Navy (DCGS-N)*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 2174				
DCGS-N Increment 1 Studies and Design	1	2020	4	2021
ICOP Systems Engineering and Test Activities	1	2020	4	2022

Exhibit R-2A, RDT&E Project Justification: PB 2022 Navy												Date: May 2021
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0304785N / *ISR & INFO OPERATIONS*				Project (Number/Name) *2227 / Distributed Common Ground System (DCGS-N) Inc 2*			
COST ($ in Millions)	**Prior Years**	**FY 2020**	**FY 2021**	**FY 2022 Base**	**FY 2022 OCO**	**FY 2022 Total**	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**	**Cost To Complete**	**Total Cost**
2227: *Distributed Common Ground System (DCGS-N) Inc 2*	0.000	38.770	26.396	30.748	-	30.748	-	-	-	-	-	-
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Project MDAP/MAIS Code: M464

A. Mission Description and Budget Item Justification

DCGS-N Inc 2 is the Navy Service component version of the DCGS Family of Systems (FoS) and is deployed on force level platforms and ashore nodes, delivering Intelligence, Surveillance, Reconnaissance, and Targeting (ISR&T) capabilities to the warfighter. DCGS-N afloat and ashore systems interface across other service DCGS and Intelligence Community (IC) architecture via the DCGS-N enterprise and ashore cloud node. DCGS-N will operate during peacetime, crisis, and war in afloat and shore-based operational configurations, sharing information and intelligence between the Navy, DoD, IC, and serving and IC. It will serve as a tactical gateway to share Navy-unique sensor data (e.g., MQ-25, RAQ-35, MQ-4, and P-8, etc.) across the IC. DCGS-N will enable users to identify, locate, and confirm threats and targets using the all-source data store, support Intelligence Preparation of the Operational Environment, battle management, target nomination, and execute collection planning and requests. The program will integrate this data with available Command and Control systems, weapons, combat, and Meteorological and Oceanographic forecast and sensor data. DCGS-N will provide situational awareness to the operational decision-maker.

DCGS-N Inc 2 will decompose the validated Information Systems Capability Development Document (IS-CDD) requirements into six modular capability areas (CA) and implement agile development processes to incrementally deliver capability through the entire life cycle of the program. The decomposed requirements will be prioritized through the DCGS-N Requirements Governance Board (DRGB) and documented through the Requirement Definitions Package (RDP) to scope DCGS-N Inc 2 development priorities and inform near-term programmatic planning. PMW 120 will incorporate user feed back at each iterative release (IR) through a robust requirements process characterized by annual Fleet User Symposiums and consistent action officer coordination. The DRGB Charter further describes the requirements process for DCGS-N Inc 2

Both near-term and long-term implementation will maximize use of government off-the-shelf (GOTS) and commercial software tools and standards. DCGS-N will implement an enduring Adopt-Buy-Create (ABC) methodology to identify and integrate mature GOTS and commercial items currently in use with the Defense Intelligence Security Enterprise, the DCGS FoS, broader IC Information Technology Enterprise, and existing Joint and Navy Science and Technology efforts. The program will employ an agile approach to requirements management, new software development, commercial items, GOTS integration, testing, and delivery of incremental functionality aligned to user priorities. Features will be completed within the financial resources allocated to the program, with less important features deferred and prioritized based on user requirements

FY 2022 will focus on the development and integration of the knowledgebase foundational layer upon which future capabilities will integrate with for data access. FY 2022 will also support the initial application deployment modernization utilizing containerization and Agile Core Services to provide more frequent application updates.

Exhibit R-2A, RDT&E Project Justification: PB 2022 Navy		Date: May 2021
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0304785N / *ISR & INFO OPERATIONS*	**Project (Number/Name)** *2227 / Distributed Common Ground System (DCGS-N) Inc 2*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Title: Distributed Common Ground System-Navy (DCGS-N) Increment 2	38.770	26.396	30.748	0.000	30.748
Articles:	-	-	-	-	-
FY 2021 Plans: - Focusing on continuation of software integration and improvements during individual software sprints resulting in capability drops that are ready for testing/fielding. - Supporting development and integration efforts to fuse Intelligence, Surveillance, Reconnaissance, and Targeting (ISR&T) data collected, exploited and disseminated by ISR systems with other intelligence data to support kinetic (bombs, missiles, bullets) and non-kinetic fires (electronic attack, cyber-attack) to improve exploitation of the electromagnetic spectrum. Using an agile software development model, efforts will focus on completion of features via multiple releases. - Supporting the development and integration of automated testing. The use of automated testing is an integral component of software integration, as it allows for implementation of ongoing, formalized testing that is extremely time intensive to implement manually. Test automation provides reliable and consistent testing of code to allow for continuous delivery and analysis. However, this methodology also increases the number of required developmental and operational test events, and Fielding Decisions. Will also support these increased test events and reviews. - Continuing development and integration efforts to support Risk Assessment Level of Test (RALOT) events to inform the scope of Developmental Test and Evaluation (DT&E) and Initial Operational Test and Evaluation (IOT&E) aligning to the completion of features, capability improvements, and technology insertion. - Commencing transition of developmental capabilities, such as Navy Tactical Data Manager (NTDM), among others in order to address emergent threats. The importance of continual technology assessment cannot be understated, particularly as it relates to the development of plans to conduct future integration of advanced algorithms and analytics that advance the concept of operations for the intelligence community. - Continuing to work closely with governmental and non-governmental agencies and organizations in order to align fleet requirements with capabilities across various Technology Readiness Levels (TRLs). Those capabilities are being mapped into the DCGS-N Increment 2 technology insertion plan.					
FY 2022 Base Plans: - Continue focusing on continuation of software integration and improvements during individual software sprints resulting in Iterative Releases (IR) that are ready for testing/fielding. - Support development and integration efforts to fuse Intelligence, Surveillance, Reconnaissance, and Targeting (ISR&T) data collected, exploited and disseminated by ISR systems with other intelligence data to support					

Exhibit R-2A, RDT&E Project Justification: PB 2022 Navy		Date: May 2021
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0304785N / *ISR & INFO OPERATIONS*	**Project (Number/Name)** *2227 / Distributed Common Ground System (DCGS-N) Inc 2*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
kinetic (bombs, missiles, bullets) and non-kinetic fires (electronic attack, cyber-attack) to improve exploitation of the electromagnetic spectrum. - Using an agile software development model, efforts will focus on completion of features via multiple releases. - Include the development and integration of the Knowledgebase foundational layer upon which future capabilities will integrate with for data access. - Support the initial application deployment modernization utilizing containerization and Agile Core Services to provide more frequent application updates. - Further integrate capabilities with the latest evolution of the CANES Afloat network environment, Objective Baseline 2 (OB-2), moving from a connected to a primarily hosted software solution. Additional capabilities will be added to further meet Key Performance Parameters (KPPs), specifically in the areas of Object Detection and Recognition. - Commencing transition of developmental capabilities, such as Surveillance, Persistent Observation, and Target Recognition (SPOTR), among others in order to address emergent threats. The importance of continual technology assessment cannot be understated, particularly as it relates to the development of plans to conduct future integration of advanced algorithms and analytics that advance the concept of operations for the intelligence community. - Continue to work closely with governmental and non-governmental agencies and organizations in order to align fleet requirements with capabilities across various Technology Readiness Levels (TRLs). Those capabilities will be mapped into the DCGS-N Increment 2 technology insertion plan. - Target a Fleet demonstration/exercise (TRIDENT WARRIOR) to test system in a large-scale, at-sea experiment. ***FY 2022 OCO Plans:*** N/A ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Distributed Common Ground System-Navy (DCGS-N) Increment 2 (Inc 2) FY 2021 to FY 2022 increase is attributed to the initial application deployment modernization utilizing containerization and Agile Core Services (ACS) to provide more frequent application.					
Accomplishments/Planned Programs Subtotals	38.770	26.396	30.748	0.000	30.748

Exhibit R-2A, RDT&E Project Justification: PB 2022 Navy		Date: May 2021
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0304785N / *ISR & INFO OPERATIONS*	**Project (Number/Name)** *2227 / Distributed Common Ground System (DCGS-N) Inc 2*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
• OPN/2914: *Distributed Common Ground System-Navy (DCGS-N)*	14.942	18.872	16.691	-	16.691	-	-	-	-	-	-

Remarks

D. Acquisition Strategy

The DCGS-N Inc 2 acquisition strategy (AS) will follow the software acquisition pathway to incrementally deliver capability through the entire lifecycle of the program. The evolutionary approach will consist of multiple, iterative releases (IR) that collectively update the system to meet or exceed all Information Systems Capability Development Document (IS-CDD), Key Performance Parameter (KPP) / Key System Attribute (KSA) threshold requirements. Each product line will be integrated and adapted to ensure viability and effectiveness of capabilities for operational use. The approach will incorporate test and evaluation and cyber hardening requirements in an integrated Development Security Operations (DevSecOps) environment and is integral to the program's IR delivery methodology.

Key elements of the DCGS-N Inc 2 AS include frequent IRs, maximum leverage of mature capabilities through a multi-faceted ABC methodology, a robust Open System Architecture (OSA) centered on a core knowledge base with common Application Programming Interfaces (APIs), flexible contracting, tailored test and evaluation (T&E) strategy, and release authorizations informed by sprint demos and user acceptance. In accordance with DoDI 5000.02 requirements, DCGS-N Inc 2 IRs will incrementally deliver major capability releases when the system meets user defined Minimum Viable Product (MVP), Minimum Viable Capability Release (MVCR), and a culminating Operational Release (OR). The program will leverage the ABC methodology to incorporate new product elements and on-ramp new Capability Area (CA) informed by a Continuous Technology Assessment (CTA) throughout the lifecycle of the program. Industry standards for agile development will be implemented to increase speed and consistencies of deliveries, enabling the program office to rapidly respond to Fleet requirements.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Navy		Date: May 2021
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0304785N / *ISR & INFO OPERATIONS*	**Project (Number/Name)** *2227 / Distributed Common Ground System (DCGS-N) Inc 2*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary Software Development	C/CPFF	LEIDOS : Reston, VA	0.000	21.381	Nov 2019	11.865	Nov 2020	13.797	Nov 2021	-		13.797	-	-	-
Primary Hardware Development	WR	NIWC PAC : San Diego, CA	0.000	2.727	Oct 2019	0.000	Oct 2020	0.000	Oct 2021	-		0.000	-	-	-
Integration Assembly & Test	WR	NIWC PAC : San Diego, CA	0.000	5.580	Oct 2019	6.601	Oct 2020	7.857	Oct 2021	-		7.857	-	-	-
Integration Assembly & Test	C/CPFF	KAB : San Diego, CA	0.000	1.762	Nov 2019	1.460	Nov 2020	1.738	Nov 2021	-		1.738	-	-	-
Government Technical Oversight (Dev)	WR	NIWC LANT : Charleston, SC	0.000	1.783	Oct 2019	1.567	Oct 2020	1.865	Oct 2021	-		1.865	-	-	-
Government Technical Oversight(Dev)	WR	NIWC PAC : San Diego, CA	0.000	0.293	Oct 2019	0.250	Oct 2020	0.298	Oct 2021	-		0.298	-	-	-
		Subtotal	0.000	33.526		21.743		25.555		-		25.555	-	-	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Development Support	C/CPFF	SAIC : Columbia, MD	0.000	1.745	Feb 2020	1.265	Feb 2021	1.449	Feb 2022	-		1.449	-	-	-
Development Support	WR	NIWC LANT : Charleston, SC	0.000	0.171	Oct 2019	0.151	Oct 2020	0.180	Oct 2021	-		0.180	-	-	-
Integrated Logistics Support	Various	Various : Various	0.000	0.383	Oct 2019	0.383	Oct 2020	0.456	Oct 2021	-		0.456	-	-	-
Government Engineering Support	WR	NIWC LANT : Charleston, SC	0.000	0.200	Nov 2019	0.150	Nov 2020	0.179	Nov 2021	-		0.179	-	-	-
		Subtotal	0.000	2.499		1.949		2.264		-		2.264	-	-	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Navy		Date: May 2021
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0304785N / *ISR & INFO OPERATIONS*	**Project (Number/Name)** *2227 / Distributed Common Ground System (DCGS-N) Inc 2*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	NIWC LANT : Charleston, SC	0.000	0.451	Oct 2019	0.486	Oct 2020	0.579	Oct 2021	-		0.579	-	-	-
Developmental Test & Evaluation	WR	NIWC PAC : San Diego, CA	0.000	0.594	Oct 2019	0.568	Oct 2020	0.700	Oct 2021	-		0.700	-	-	-
Developmental Test & Evaluation	C/CPFF	Various : Various	0.000	0.300	Dec 2019	0.440	Dec 2020	0.500	Dec 2021	-		0.500	-	-	-
		Subtotal	0.000	1.345		1.494		1.779		-		1.779	-	-	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Acquisition Management Support	C/CPFF	BAH : San Diego, CA	0.000	1.159	Nov 2019	0.950	Nov 2020	0.950	Nov 2021	-		0.950	-	-	-
Travel	Allot	NAVWAR : San Diego, CA	0.000	0.241	Nov 2019	0.260	Nov 2020	0.200	Nov 2021	-		0.200	-	-	-
		Subtotal	0.000	1.400		1.210		1.150		-		1.150	-	-	N/A

	Prior Years	FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	38.770		26.396		30.748		-		30.748	-	-	N/A

Remarks

PY data is provided under PE 0305208N Project 2227.

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Navy		Date: May 2021
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0304785N / *ISR & INFO OPERATIONS*	**Project (Number/Name)** *2227 / Distributed Common Ground System (DCGS-N) Inc 2*

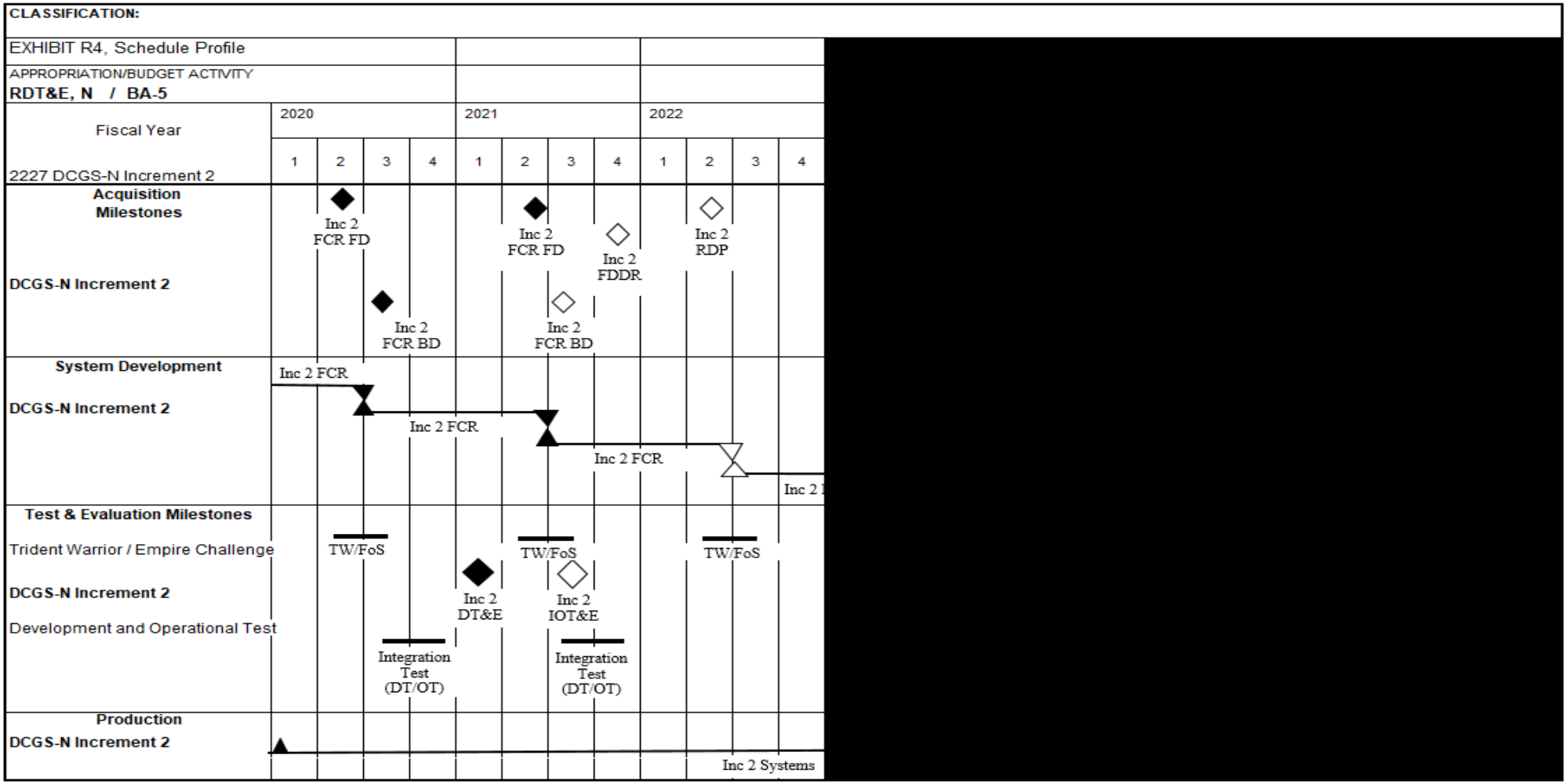

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Navy		Date: May 2021
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0304785N / *ISR & INFO OPERATIONS*	**Project (Number/Name)** *2227 / Distributed Common Ground System (DCGS-N) Inc 2*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 2227				
DCGS-N Inc 2 FCR Fielding Decision (FD) FY20	2	2020	2	2020
DCGS-N Inc 2 FCR Build Decision (BD) FY20	3	2020	3	2020
DCGS-N Inc 2 FCR Fielding Decision (FD) FY21	2	2021	2	2021
DCGS-N Inc 2 FCR Build Decision (BD) FY21	3	2021	3	2021
DCGS-N Inc 2 FDDR	4	2021	4	2021
DCGS-N Inc 2 Requirements Definition Package (RDP) FY22	2	2022	2	2022
DCGS-N Inc 2 FCR Development FY20	1	2020	2	2020
DCGS-N Inc 2 FCR Development FY21	2	2020	2	2021
DCGS-N Inc 2 FCR Development FY22	2	2021	2	2022
DCGS-N Inc 2 Integration of Emergent Technologies & Iterative Releases	2	2022	4	2022
Trident Warrior/DCGS Family of Systems (FoS) 2020	2	2020	3	2020
DCGS-N Inc 2 FCR Integrated Test (DT/OT) FY20	3	2020	4	2020
DCGS-N Inc 2 FCR Integrated Test (DT/OT) FY21	3	2021	4	2021
DCGS-N Inc 2 DT&E	1	2021	1	2021
Trident Warrior/DCGS Family of Systems (FoS) 2021	2	2021	3	2021
DCGS-N Inc 2 IOT&E	3	2021	3	2021
Trident Warrior/DCGS Family of Systems (FoS) 2022	2	2022	3	2022
DCGS-N Inc 2 Procurement	1	2020	4	2022

Exhibit R-2A, RDT&E Project Justification: PB 2022 Navy											Date: May 2021	
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0304785N / *ISR & INFO OPERATIONS*				Project (Number/Name) 2351 / *MDA*			
COST ($ in Millions)	**Prior Years**	**FY 2020**	**FY 2021**	**FY 2022 Base**	**FY 2022 OCO**	**FY 2022 Total**	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**	**Cost To Complete**	**Total Cost**
2351: *MDA*	0.000	0.000	4.000	3.846	-	3.846	-	-	-	-	-	-
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Maritime Domain Awareness project is a portfolio of partnerships that leverages the investments of other agencies in MDA tools and data, and funds the enhancement of those tools to meet Navy requirements for worldwide over-the-horizon vessel tracking and other MDA data in support of Distributed Common Ground System-Navy, Automated Identification System program of record, and MDA analysts across the whole of government.

The MDA project manages the partnership with the Department of Transportation to leverage the Maritime Safety and Security Information System (MSSIS) and SeaVision, an unclassified non-Public Key Infrastructure (PKI) information-sharing tool used by United States Indo-Pacific Command (INDOPACOM), European Command (EUCOM), Africa Command (AFRICOM), other USG agencies, and foreign partner nations to increase maritime security by sharing information. SeaVision produces a track picture based data contributed by MSSIS partners such as costal AIS and costal radar and augmented with commercially procured Automated Identification System (AIS) data, with additional commercial data from commercial geospatial data. SeaVision is a cloud-based system where users can visualize vessel tracks, access vessel information and run a growing set of analytics. SeaVision also has Application Programming Interfaces (APIs) for machine-to-machine data exchange with authorized systems including the Navy's Automated Identification System program of record.

The MDA project manages the partnership with the National Reconnaissance Office (NRO) to leverage the THRESHER Maritime system. THRESHER Maritime is a cloud-based system that provides over-the-horizon vessel tracking and analysis tools enhanced by Artificial Intelligence/Machine Learning (AI/ML). The MDA project is working with NRO to enhance THRESHER Maritime capabilities to produce a correlated and fused track feed and provide it over the Integrated Broadcast Service and to provide THRESHER on both JWICS and SIPR net. Completion of these enhancements results in the decommissioning of legacy MDA tools SeaLink Advanced Analysis (S2A).

The MDA project manages the partnership with Distributed Common Ground System-Intelligence Community (DCGS-IC) for the classified cloud environment hosting of a testing environment for SeaLink Advanced Analysis.

FY 2022 efforts for SeaVision include user driven and prioritized feature enhancements documented in the System Requirements Specification 6.0 which will be developed with the stakeholder community in FY21. Major capabilities include the integration of Artificial Intelligence and Machine Learning (AI/ML) to improve analysis, integration of an object store graph database to enable Object Based Production and enhance interoperability with Office of Naval Intelligence Authoritative Maritime Services. These efforts also include back-end enhancements to the Maritime Safety and Security Information System (MSSIS) to facilitate better data flow and improved data awareness.

Exhibit R-2A, RDT&E Project Justification: PB 2022 Navy		Date: May 2021
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0304785N / *ISR & INFO OPERATIONS*	**Project (Number/Name)** 2351 / *MDA*

FY2022 efforts for THRESHER Maritime center on joint certification of a multi-Intelligence fused track data feed, engineering work to provide that feed to and through the Integrated Broadcast System (IBS), and testing of the IBS feed for units afloat and ashore. Other efforts include user driven feature enhancements to AI/ML driven analytics and improved training materials.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Title: Maritime Domain Awareness (MDA)	0.000	4.000	3.846	0.000	3.846
Articles:	-	-	-	-	-
FY 2021 Plans: - The FY21 funding supports the modernization of SeaLink Advanced Analysis (S2A) (from Oracle to Postgres, with increased capabilities) and adds streaming capability to the correlator. - Funds will be used for development in SeaVision and Maritime Safety and Security Information System (MSSIS) which are separate, interdependent systems, as well as development for THRESHER Maritime to satisfy Navy requirements to track and edit Intelligence Broadcast System (IBS) data feed production.					
FY 2022 Base Plans: - Integration of Object Based Production capability in SeaVision - Integration of Artificial Intelligence and Machine Learning based analytics in Seavision - Enhancements to the Maritime Safety and Security Information System (MSSIS) for improved data flow and data awareness - Testing and certification of a THRESHER Maritime produced track feed for dissemination via the Integrated Broadcast network - Improvements to THRESHER Maritime analytics and training materials					
FY 2022 OCO Plans: N/A					
FY 2021 to FY 2022 Increase/Decrease Statement: There are no significant changes from FY 2021 to FY 2022.					
Accomplishments/Planned Programs Subtotals	0.000	4.000	3.846	0.000	3.846

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2022 Navy		Date: May 2021
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0304785N / *ISR & INFO OPERATIONS*	**Project (Number/Name)** 2351 / *MDA*

D. Acquisition Strategy

Maritime Domain Awareness (MDA) is governed under the Program Executive Office for Command, Control, Communications, Computers, Intelligence, and Space (PEO C4I and Space) instruction for non-ACAT projects. MDA will fund partner agencies for the enhancement of existing tools to satisfy Navy requirements.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Navy		Date: May 2021
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0304785N / *ISR & INFO OPERATIONS*	Project (Number/Name) 2351 / *MDA*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Software Development	WR	NIWC PAC : San Diego, CA	0.000	0.000		1.316	Oct 2020	1.326	Oct 2021	-		1.326	-	-	-
Software Development	MIPR	DOT Volpe Center : Cambridge, MA	0.000	0.000		0.769	Oct 2020	0.874	Oct 2021	-		0.874	-	-	-
Software Development	MIPR	Classified Contracts : Classified Contracts	0.000	0.000		1.915	Oct 2020	1.646	Oct 2021	-		1.646	-	-	-
		Subtotal	0.000	0.000		4.000		3.846		-		3.846	-	-	N/A

	Prior Years	FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.000		4.000		3.846		-		3.846	-	-	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Navy		Date: May 2021
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0304785N / *ISR & INFO OPERATIONS*	**Project (Number/Name)** 2351 / *MDA*

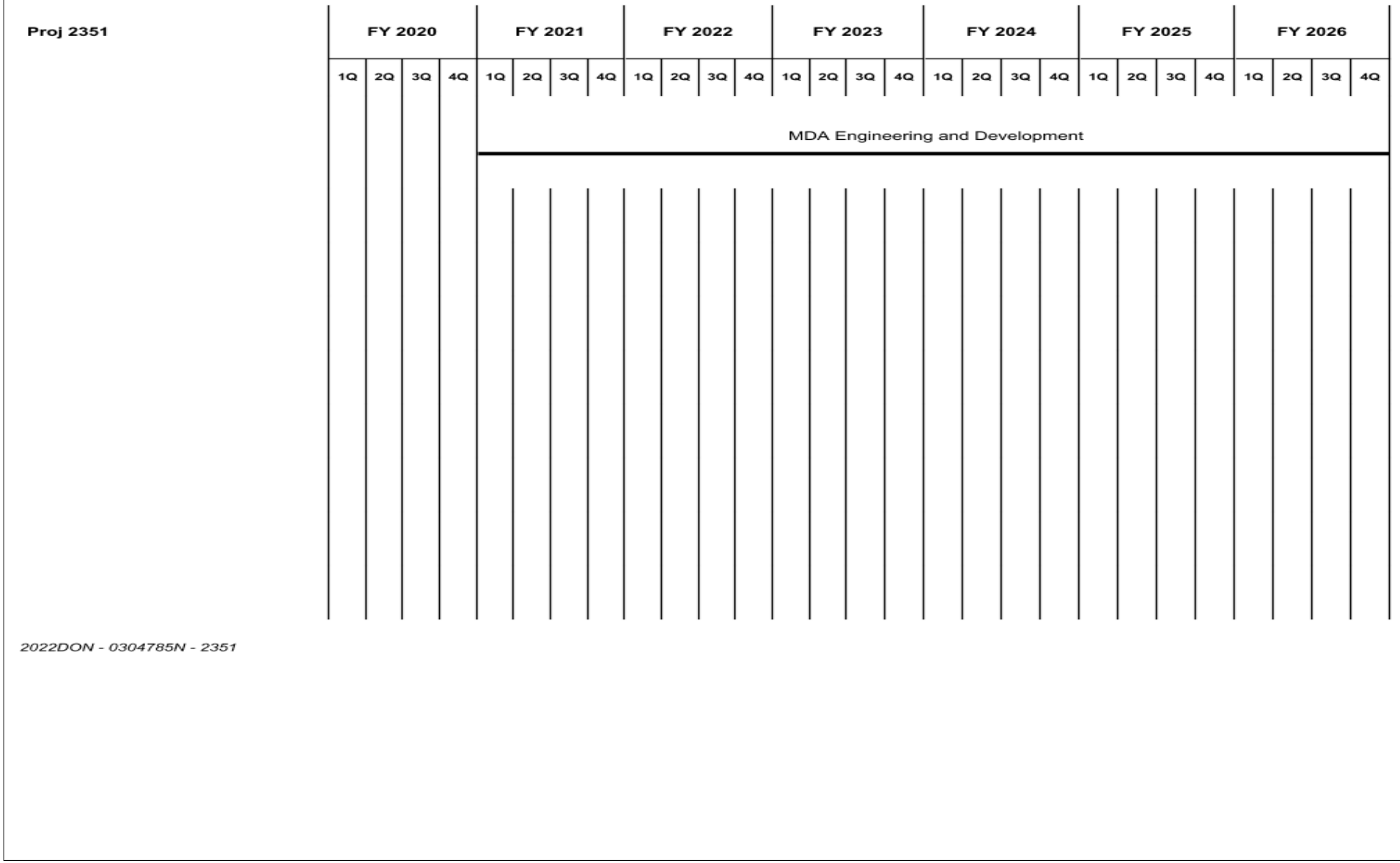

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Navy		Date: May 2021
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0304785N / *ISR & INFO OPERATIONS*	**Project (Number/Name)** 2351 / *MDA*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 2351				
MDA Engineering and Development	1	2021	4	2022

Exhibit R-2A, RDT&E Project Justification: PB 2022 Navy			Date: May 2021
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0304785N / *ISR & INFO OPERATIONS*	Project (Number/Name) 3091 / *Advanced Cryptological Sys Eng (CCOP)*	

COST ($ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
3091: *Advanced Cryptological Sys Eng (CCOP)*	0.000	4.515	4.610	4.386	-	4.386	-	-	-	-	-	-
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Advanced Cryptologic Systems Engineering - Cryptologic Carry On Program (CCOP) program rapidly develops and fields state-of-the-art signal acquisition capabilities in response to Combatant Command requirements to provide augmentable, quick-reaction surface, subsurface and airborne cryptologic carry-on capabilities. There are approximately 124 cryptologic capable surface ships and shore sites in the current Naval inventory; a potential user of this carry-on equipment, depending on deployment schedules and the tempo of operations. In addition, there are other numerous Naval platforms (including U.S. Coast Guard, Patrol Craft and USNS) that could serve as potential users. This funding line provides resources to enable rapid transition of available Commercial Off-The-Shelf (COTS) and Government Off -The-Shelf (GOTS) technologies that apply to Fleet requirements for carry-on system functionalities. These technologies typically require various levels of integration to leverage on-board systems providing system and mission management, product reporting, and data analysis. COTS / GOTS system documentation and training materials require adaptation or modification to meet fleet operator requirements, or entirely new training materials may need to be developed. Prior to operational deployment, systems must be systematically tested to ensure suitable and reliable operation, tested for network vulnerabilities if connected to shipboard Local Area Networks, and tested relative to interoperability requirements. Certification testing is conducted to meet Office of Naval Intelligence security requirements, and network testing is conducted in accordance with Information Technology (IT) requirements to allow connection to Navy networks. Funding will also provide resources to address rapid deployment of enhancements or improvements to the common hardware and/or software baseline of all other carry-on subsystems to meet emergent requirements. Funding will support development and integration efforts to fuse data produced and distributed by Shipboard IW / Information Operations (IO) systems with other intelligence data at multiple classification levels which is then provided to shipboard combat systems to support kinetic (bombs, mortars, missiles, bullets, etc.) and non-kinetic fires (electronic attack, lasers, cyber) in order to enable a more agile, effective and complete exploitation of the electromagnetic spectrum.

In FY 2022, the Advanced Cryptologic Systems Engineering - CCOP program will integrate, test, and document identified COTS and GOTS augmentable technologies and subsystems to meet emergent Fleet requirements as specified in the Signal of Interest (SOI) and target threat lists. CCOP will develop upgrades to existing systems and subsystems according to Fleet requirements and Integrated Fleet Priority lists. CCOP will develop new signal processing algorithms and software based solutions to continue enabling rapid transition of capability to permanently installed Ship's Signal Exploitation Space (SSES) systems, including SSEE Family of Systems (FoS) and its variants. CCOP will conduct research and development of Adaptive Mission Modules for rapid insertion to counter specific threats or provide intelligence in specific areas of operation. More details are available at higher classification.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Title: Advanced Cryptological Sys Eng - Cryptologic Carry On Program (CCOP)	4.515	4.610	4.386	0.000	4.386
Articles:	-	-	-	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2022 Navy		Date: May 2021
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0304785N / *ISR & INFO OPERATIONS*	**Project (Number/Name)** 3091 / *Advanced Cryptological Sys Eng (CCOP)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
FY 2021 Plans: - Cryptologic Carry On Program (CCOP) will continue to integrate, test, and document identified Commercial Off the Shelf (COTS) and Government Off the Shelf (GOTS) augmentable technologies and subsystems to meet emergent Fleet requirements as specified in the Signal of Interest (SOI) and target threat lists. - Continue to develop upgrades to existing systems and subsystems according to Fleet requirements and Integrated Fleet Priority lists. - Continue to develop new signal processing algorithms and software based solutions to continue enabling rapid transition of capability to permanently installed Ship's Signal Exploitation Space (SSES) systems, including SSEE Family of Systems (FoS) and its variants. - Continue research and development of Adaptive Mission Modules for rapid insertion to counter specific threats or provide intelligence in specific areas of operation. More details are available at higher classification. ***FY 2022 Base Plans:*** - Continue to integrate, test, and document identified COTS and GOTS augmentable technologies and subsystems to meet emergent Fleet requirements as specified in the SOI and target threat lists. - Continue to develop upgrades to existing systems and subsystems according to Fleet requirements and Integrated Fleet Priority lists. - Continue to develop new signal processing algorithms and software based solutions to continue enabling rapid transition of capability to permanently installed SSES systems, including SSEE FoS and its variants. - Continue to conduct research and development of Adaptive Mission Modules for rapid insertion to counter specific threats or provide intelligence in specific areas of operation. More details are available at higher classification. ***FY 2022 OCO Plans:*** N/A ***FY 2021 to FY 2022 Increase/Decrease Statement:*** There are no significant decreases from FY 2021 to FY 2022.					
Accomplishments/Planned Programs Subtotals	4.515	4.610	4.386	0.000	4.386

Exhibit R-2A, RDT&E Project Justification: PB 2022 Navy		Date: May 2021
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0304785N / *ISR & INFO OPERATIONS*	**Project (Number/Name)** 3091 / *Advanced Cryptological Sys Eng (CCOP)*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
• OPN/3501: *Cryptologic Communications Equip*	9.510	10.063	10.698	-	10.698	-	-	-	-	-	-

Remarks

OPN BLI 3501 includes multiple programs; the funds listed are associated with CCOP.

D. Acquisition Strategy

The Advanced Cryptologic Systems Engineering - Cryptologic Carry On Program (CCOP) program delivers state-of-the-art signal acquisition software for CCOP systems in response to Combatant Command requirements for a quick-reaction surface, subsurface and airborne cryptologic carry-on capability.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Navy			Date: May 2021
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0304785N / *ISR & INFO OPERATIONS*	Project (Number/Name) 3091 / *Advanced Cryptological Sys Eng (CCOP)*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Software Development	C/CPFF	Classified Contract : Classified Contract	0.000	2.838	Jan 2020	2.889	Jan 2021	2.649	Jan 2022	-		2.649	-	-	-
Software Development	WR	NIWC PAC : San Diego, CA	0.000	0.556	Nov 2019	0.572	Nov 2020	0.577	Nov 2021	-		0.577	-	-	-
Software Development	WR	NIWC LANT : Charleston, SC	0.000	0.287	Nov 2019	0.295	Nov 2020	0.298	Nov 2021	-		0.298	-	-	-
		Subtotal	0.000	3.681		3.756		3.524		-		3.524	-	-	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering	C/CPFF	Classified Contract : Classified Contract	0.000	0.441	Jan 2020	0.450	Jan 2021	0.454	Jan 2022	-		0.454	-	-	-
Govt Tech Oversight	WR	NIWC PAC : San Diego	0.000	0.211	Nov 2019	0.217	Nov 2020	0.219	Nov 2021	-		0.219	-	-	-
		Subtotal	0.000	0.652		0.667		0.673		-		0.673	-	-	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	NIWC LANT : Charleston, SC	0.000	0.182	Nov 2019	0.187	Nov 2020	0.189	Nov 2021	-		0.189	-	-	-
		Subtotal	0.000	0.182		0.187		0.189		-		0.189	-	-	N/A

	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	4.515		4.610		4.386		-		4.386	-	-	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Navy		Date: May 2021
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0304785N / *ISR & INFO OPERATIONS*	**Project (Number/Name)** 3091 / *Advanced Cryptological Sys Eng (CCOP)*

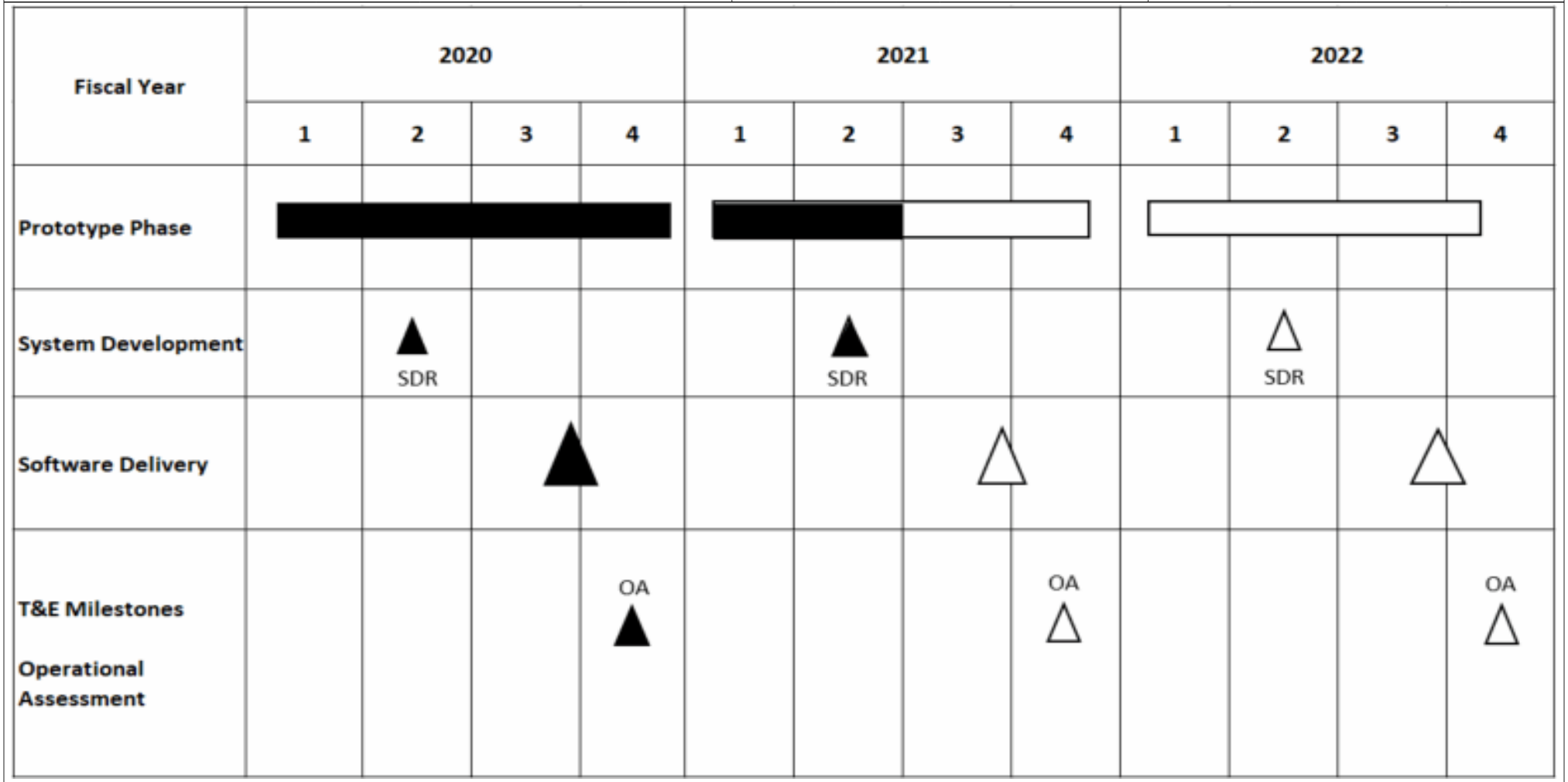

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Navy		Date: May 2021
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0304785N / *ISR & INFO OPERATIONS*	**Project (Number/Name)** 3091 / *Advanced Cryptological Sys Eng (CCOP)*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 3091				
Prototype Phase - 2020	1	2020	4	2020
Prototype Phase - 2021	1	2021	4	2021
Prototype Phase - 2022	1	2022	4	2022
System Design Review (SDR) - 2020	2	2020	2	2020
System Design Review (SDR) - 2021	2	2021	2	2021
System Design Review (SDR) - 2022	2	2022	2	2022
Software Delivery - 2020	3	2020	4	2020
Software Delivery - 2021	3	2021	4	2021
Software Delivery - 2022	3	2022	4	2022
Operational Assessment (OA) - 2020	4	2020	4	2020
Operational Assessment (OA) - 2021	4	2021	4	2021
Operational Assessment (OA) - 2022	4	2022	4	2022

Exhibit R-2A, RDT&E Project Justification: PB 2022 Navy			Date: May 2021
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0304785N / *ISR & INFO OPERATIONS*	Project (Number/Name) 3786 / *Tactical Edge Targeting*	

COST ($ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
3786: *Tactical Edge Targeting*	0.000	0.000	22.162	22.966	-	22.966	-	-	-	-	-	-
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

TET is a collection of existing National Technical Means (NTM) and organic sensors that are fused and disseminated through existing networks in real-time to enable an enhanced tracking and targeting capability. The Army, Navy and Air Force are developing longer range weapons that will require reliable and accurate targeting data to detect, classify, identify, and target adversaries. Leverages existing large sensor investments across the U.S. Government (USG). Enhances tracking against hard targets in denied environments and maintains ability to securely communicate with these sensors in real-time. The United States Navy (USN) plans to integrate existing NTM and planned new sensors with existing service architectures to provide a low-cost, resilient, real-time tracking and targeting capability to supplement existing sensors. Due to the nature of these projects, specific applications and detailed plans are available at a higher classification level.

FY 2022 will focus on continuing research, development, integration, and test of a robust System of Systems (SoS) capabilities mission context. As well as, incrementally implementing distributed lethality using High Side Fusion (HSF), National Tactical Integration (NTI), and Combat System integration (CSI) in Naval operational contexts. Additionally, TET will coordinate and transition Navy Integrated Fires Element (NIFE) tools into the National Reconnaissance Office (NRO) cloud baseline as part of TET NIFE enhancements.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Title: Tactical Edge Targeting (TET)	0.000	22.162	22.966	0.000	22.966
Articles:	-	-	-	-	-
FY 2021 Plans: - TET funding supports the continuing research, development, integration, and test of a robust Systems of Systems (SoS) capabilities mission context. - The TET effort conducts a series of spiral exercises derived from SoS mission engineering analyses. These exercise spirals incrementally implement distributed lethality using High Side Fusion (HSF), National Tactical Integration (NTI), and Combat System integration (CSI) in Naval operational contexts. - Funding supports development of new capabilities and integration of existing capabilities to fuse ISR data with other intelligence data to support Distributed Maritime Operations (DMO). - TET will continue working closely with governmental and non-governmental agencies and organizations in order to match fleet requirements with capabilities across the SoS enterprise. Additional details are held at a higher classification level.					
FY 2022 Base Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2022 Navy		Date: May 2021
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0304785N / *ISR & INFO OPERATIONS*	**Project (Number/Name)** 3786 / *Tactical Edge Targeting*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
- Continue to research, develop, integrate, and test of a robust Systems of Systems (SoS) capabilities mission context. - Continue to analyze system architectures to identify new sensors for data fusion. - Establish and document demonstration prototype priorities for spiral exercises. - Develop new capabilities and integrate with existing capabilities. - Develop, modify, or enhance identified systems to meet prototype requirements. - Continue to conduct spiral exercises derived from SoS mission engineering analyses. - Incrementally implement distributed lethality using High Side Fusion (HSF), National Tactical Integration (NTI), and Combat System integration (CSI) in Naval operational contexts. - Coordinate and transition capabilities to appropriate sustaining Programs of Records. - Coordinate and transition Navy Integrated Fires Element (NIFE) tools into the National Reconnaissance Office (NRO) cloud baseline as part of Tactical Edge Targeting (TET) NIFE enhancements. - Additional details are held at a higher classification level. ***FY 2022 OCO Plans:*** N/A ***FY 2021 to FY 2022 Increase/Decrease Statement:*** TET increase from FY2021 to FY2022 will commence NIFE tools transition to NRO cloud.					
Accomplishments/Planned Programs Subtotals	0.000	22.162	22.966	0.000	22.966

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Program Executive Office (PEO) Command, Control, Communications, Computers, Intelligence (C4I) and Space Systems is conducting internal pre-acquisition planning to develop a formal acquisition strategy as this program transitions from Strategic Capabilities Office (SCO). TET spirals are Limited Objective Experiments that support the development and integration of new capabilities, and the refinement of Concepts of Operations, to enhance the ability of our warfighters to track and target adversaries in tactically challenging environments. Each Spiral achieves multiple technical objectives that support decision milestones concerning the further development or transition of new capabilities into operations.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Navy			Date: May 2021
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0304785N / *ISR & INFO OPERATIONS*	Project (Number/Name) 3786 / *Tactical Edge Targeting*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Hardware/Software Development	C/CPFF	Assurance Tech Corp : Carlisle, MA	0.000	0.000		5.317	Mar 2021	6.121	Mar 2022	-		6.121	-	-	-
Hardware/Software Development	C/CPFF	JHU APL : Laurel, MD	0.000	0.000		1.890	Jan 2021	1.890	Jan 2022	-		1.890	-	-	-
Hardware/Software Development	WR	NIWC-Pacific : San Diego, CA	0.000	0.000		0.100	Jan 2021	0.100	Jan 2022	-		0.100	-	-	-
Hardware/Software Development	WR	NSWC PCD : Panama City, FL	0.000	0.000		4.145	Jan 2021	4.145	Jan 2022	-		4.145	-	-	-
Hardware/Software Development	C/CPFF	MIT LL : Lexington, MA	0.000	0.000		1.200	Mar 2021	1.200	Mar 2022	-		1.200	-	-	-
Software Development	C/CPFF	Parsons : Colorado Springs, CO	0.000	0.000		2.000	Mar 2021	2.000	Mar 2022	-		2.000	-	-	-
		Subtotal	0.000	0.000		14.652		15.456		-		15.456	-	-	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Technical Support	Various	Various : Various	0.000	0.000		0.400	Mar 2021	0.400	Mar 2022	-		0.400	-	-	-
Govt Technical Oversight	Various	NIWC PAC : San Diego, CA	0.000	0.000		1.150	Jan 2021	1.150	Jan 2022	-		1.150	-	-	-
		Subtotal	0.000	0.000		1.550		1.550		-		1.550	-	-	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test and Evaluation	C/CPFF	METRON : San Diego, CA	0.000	0.000		0.360	Jan 2021	0.360	Jan 2022	-		0.360	-	-	-
Developmental Test and Evaluation	MIPR	Atlantic Test Range : Patuxent River, MD	0.000	0.000		0.200	Jan 2021	0.200	Jan 2022	-		0.200	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Navy			Date: May 2021
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0304785N / *ISR & INFO OPERATIONS*	Project (Number/Name) 3786 / *Tactical Edge Targeting*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test and Evaluation	MIPR	NRL : Washington, DC	0.000	0.000		0.200	Jan 2021	0.200	Jan 2022	-		0.200	-	-	-
Integration Assembly and Test	MIPR	JITC : Fort Huachuca, AZ	0.000	0.000		0.050	Jan 2021	0.050	Jan 2022	-		0.050	-	-	-
Developmental Test and Evaluation	C/CPFF	METRON : Denver, CO	0.000	0.000		3.675	Jan 2021	3.675	Jan 2022	-		3.675	-	-	-
Developmental Test and Evaluation Support	MIPR	NRL : Denver, CO	0.000	0.000		0.150	Jan 2021	0.150	Jan 2022	-		0.150	-	-	-
		Subtotal	0.000	0.000		4.635		4.635		-		4.635	-	-	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	C/CPFF	METRON : Washington, DC	0.000	0.000		1.325	Jan 2021	1.325	Jan 2022	-		1.325	-	-	-
		Subtotal	0.000	0.000		1.325		1.325		-		1.325	-	-	N/A

	Prior Years	FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.000		22.162		22.966		-		22.966	-	-	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Navy		Date: May 2021
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0304785N / *ISR & INFO OPERATIONS*	**Project (Number/Name)** 3786 / *Tactical Edge Targeting*

EXHIBIT R-4, SCHEDULE PROFILE

APPROPRIATION/BUDGET ACTIVITY
RDT&E, 05

Fiscal Year	2020				2021				2022			
TACTICAL EDGE TARGETING	1	2	3	4	1	2	3	4	1	2	3	4
1. DESIGN: Modeling & Simulation												
Mission-Based SOSE Design and Modeling					Mission-Based Modeling and Analysis of Joint Kill-Web Architectures							
2. BUILD: Spiral Capability Development												
Collection Orchestration / Tipping and Cueing / ATR					Spiral Development/Modification of Capabilities to Meet Joint Kill-Web Requirements							
Sensors / Data Source Integration					Spiral Development/Modification of Capabilities to Meet Joint Kill-Web Requirements							
Data Processing / Screening, Correlation, and Fusion					Spiral Development/Modification of Capabilities to Meet Joint Kill-Web Requirements							
Track Visualization, Characterization, Enrichment					Spiral Development/Modification of Capabilities to Meet Joint Kill-Web Requirements							
National-Tactical Integration (NTI)					Spiral Development/Modification of Capabilities to Meet Joint Kill-Web Requirements							
Combat System Integration (CSI)					Spiral Development/Modification of Capabilities to Meet Joint Kill-Web Requirements							
Command and Control (C2)					Spiral Development/Modification of Capabilities to Meet Joint Kill-Web Requirements							
3. TEST: Spiral Test & Evaluation												
Test Emitter Development and Employment												
US Navy Test Event / Live-Fire (Clutch Shot)												
USMC Test Event / Live-Fire (Clutch Strike)												
US Army Test Event / Live-Fire (Clutch Fires)												
US Air Force Test Event / Live-Fire (Clutch Iron)												
					Actual test schedule will vary (likely to exceed 16 events per FY)							
4. TRANSITION: Transition Successful Capability												
Integrate HW/SW into Baseline Systems					Integration Assembly & Test of Transitioning Systems, as Required							
Certification & Accreditation (Estimate 2 x Events per FY)					JITC or Other Necessary Testing and Certifications, as Required							
5. SUPPORT: Operational, Experimental, and Managerial Support					24 x 7 Tech Advisor Support for Operations and Experimentation							
Operational & Exercise Support to NIFE												
Program Management Support					Program Management							

Note: In FY20 funding was under Strategic Capabilites Office (SCO) and not reflected in this schedule

[redacted]

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Navy		Date: May 2021
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0304785N / *ISR & INFO OPERATIONS*	**Project (Number/Name)** 3786 / *Tactical Edge Targeting*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 3786				
Mission-Based SOSE Design and Modeling	2	2021	4	2022
Collection Orchestration/Tipping and Cueing/ATR	2	2021	4	2022
Sensors/Data Source Integration	2	2021	4	2022
Data Processing/Screening, Correlation, and Fusion	2	2021	4	2022
Track Visualization, Characterization, Enrichment	2	2021	4	2022
National Tactical Integration (NTI)	2	2021	4	2022
Platform/Combat Systems Integration (CSI)	2	2021	4	2022
Combat and Control (C2)	2	2021	4	2022
Spiral Test & Evaluation	2	2021	4	2022
Transition	2	2021	4	2022
Support: Operational, Experimental and Managerial Support	2	2021	4	2022